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(54) Title: SYSTEM FOR DISTRIBUTION AND REDEMPTION OF LOYALTY POINTS AND COUPONS
(54) Titre: SYSTEME DE DISTRIBUTION ET DE REMBOURSEMENT DE POINTS ET COUPONS DE FIDELITE

(57) Abstract

A system for controlling a customer reward system comprising: a first database for storing customer identifications, and for accumulated loyalty points awarded to the customer, an administration terminal for establishing loyalty point values associated with any of plural predetermined activities, and for storing the values and identities of associated activities, in a second database, a reading terminal for reading the identity of a customer at a location of the terminal, first apparatus located in the region of the reading terminal for detecting an activity of the customer, and second apparatus for accessing the second database, looking up the activity of the customer, and depositing corresponding loyalty points in the first database in association with an identification of the customer.

(57) Abrégé

L'invention concerne un procédé de commande d'un système de primes comprenant: une première base de données servant à stocker des données d'identifications de clients, les points de fidélité accumulés offerts aux clients, un terminal d'administration destiné à établir des valeurs de points de fidélité, associées à l'une des activités déterminées, et à stocker, dans une seconde base de données, les valeurs et références des activités associées, un terminal de lecture de l'identité d'un client au niveau du terminal, un premier appareil placé dans la région du terminal de lecture, servant à détecter une activité du client, ainsi qu'un second appareil destiné à accéder à la seconde base de données, à rechercher l'activité du client et à déposer des points de fidélité correspondants dans la première base de données, en association avec l'identification du client.

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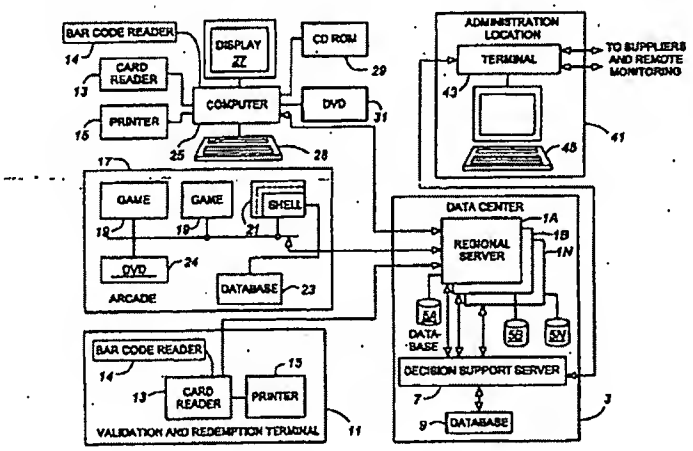
(54) Title: SYSTEM FOR DISTRIBUTION AND REDEMPTION OF LOYALTY POINTS AND COUPONS



(57) Abstract

A system for controlling a customer reward system comprising: a first database for storing customer identifications, and for accumulated loyalty points awarded to the customer, an administration terminal for establishing loyalty point values associated with any of plural predetermined activities, and for storing the values and identities of associated activities, in a second database, a reading terminal for reading the identity of a customer at a location of the terminal, first apparatus located in the region of the reading terminal for detecting an activity of the customer, and second apparatus for accessing the second database, looking up the activity of the customer, and depositing corresponding loyalty points in the first database in association with an identification of the customer.

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Description

SYSTEM FOR DISTRIBUTION AND REDEMPTION OF LOYALTY POINTS AND COUPONS

FIELD OF THE INVENTION

This invention relates to the field of data communications, and in particular to a method and a system for on-line global distribution and redemption of loyalty points and coupons.

BACKGROUND TO THE INVENTION

Electronic transaction processing and awarding of loyalty points by bank card issuers, airlines, etc. have come into widespread use. For example, retailers commonly use card swipe terminals which read information stored on a magnetic stripe carried by the card. The information is received by telephone line at an administration office, where a computer checks the credit of the customer identified by the information from a database, and provides an authorization number or denial of the transaction. Because credit is to be provided by the issuer of the card, such as a bank, the transaction is associated specifically with and is controlled by the issuer of the credit card.

As another example, when a debit card of a customer is swiped, a transaction value is keyed in by the retailer, and a PIN number is additionally keyed in by a user. The bank account of the user, the identity of which having been previously stored in association with the PIN number and card number, is accessed, and the transaction value is debited from the bank account. This amount (less a transaction charge) is credited to the bank account of the retailer identified when the debit card reader dialed to an administration office which is in association with the bank. In this case as well, the transaction is associated specifically with and is controlled by the issuer of the debit card.

It is common that some credit card issuers record loyalty points, for example a point for each dollar purchased on the credit card. These points are accumulated by the credit card issuer to the credit of the credit card user, and can be redeemed for merchandise typically advertised in a catalogue. In some cases, loyalty points are awarded by a vendor such as an airline, wherein the loyalty points can be used for airline travel with that airline. The vendor retains its own database of loyalty points accumulated against particular customers which have joined the loyalty point program.

In addition, identity cards rather than credit cards are sometimes used in the awarding of airline miles based on purchases from certain vendors. In this case as well, the card issuer retains a single database of airline points against customers.

In all such cases, the card issuer or the vendor (e.g. the airline) retains a simple database to keep track of the value of points accumulated or retained after redemption.

There is a single authority which has issued the card, and tie-ins of a single card with a limited number (often only one, and in some cases a large number) of merchants. For example, a card issuer may have a tie-in with several merchants to provide a discount on merchandise or services. In such a case, no loyalty points tied to a particular merchant are awarded to the customer for patronizing the merchant, but loyalty points can be awarded based on use of the card per se.

Further, the systems are not capable of dispensing or redeeming premiums or loyalty points "on-the-spot" for certain actions taken by customers, for example for patronizing certain merchants. Thus in this case as well, a single loyalty point database is associated with

the card issuer, but not with the merchants. A merchant has no way of knowing whether a particular customer repeatedly purchases from that merchant.

In other words, such systems provide and record loyalty points related to use of a card, or to a single merchant, or to a single program (such as airline points), but do not provide loyalty points that can be traded between merchants or programs, and do not give incentive to patronize plural merchants as distinct from incentive to use a single card. The airline points programs which are not associated with a particular credit card also require the use of a single card, and loyalty points cannot be traded between merchants.

The systems are also not capable of accumulating prize values or loyalty points won on games played on game terminals, nor of dispensing prizes to players, e.g. loyalty points, premiums or plays on the games.

The systems are not capable of displaying advertising directed to specific customers who have identified themselves or have been identified at a terminal, nor for tracking what advertising has been displayed to particular customers, nor for controlling what advertising is shown to such customers.

Neither are the systems capable of allowing the loyalty points won or otherwise acquire to be used as a medium of exchange between member merchants, e.g. exchanging points won playing a video game for premiums which can be used at various merchants

SUMMARY OF THE INVENTION

The present invention is an integrated on-line system which can accumulate and decrement exchange values associated with any customer from any merchant which has authorized access to the system or by an administrator or by plural authorized administrators. The awarded exchange values for any transaction can be controlled by

an administrator or by authorized plural administrators, and can in addition be varied by location of the customer, by customer activity, by time and/or date, and by past history of either the activity itself or of the actions of the customer.

In addition, the administrator can vary the characteristics of a software program the customer, merchant, etc. is interacting with, so that loyalty points, advertisements, premiums, scores, game difficulty, and reward brackets, pricing by currency and/or loyalty point exchange, etc. can be controlled. The program can involve scoring of sporting events, scoring of school tests, operate applications such as email, etc. or it can be a video game such as one operating in a system of the type described in U.S. patent 5,083,271 issued January 21, 1992, or on a personal or public computer (public PC). A user interface to the program can be displayed on a video terminal which can be one of the games described in the aforenoted U.S. patent, or on a personal or public computer, a display type or video telephone, a network computer interacting and communicating via a private network, the internet, cable or the equivalent, a telephone line, etc. The advertisement can be shown in one or more frames which share the display with a game, or can occupy the entire display area. The advertisement can be directed to a particular player, or to a class of customer to which the player belongs, and/or can be scheduled based on time and/or date and/or location at which it is to be presented. The advertisement can be changed based on various criteria, such as the location of the display, how many times it has been run, how many times it has been directed to the customer or class of customer at a particular display or display location or at plural particular or classes of locations or based on

advertisements which have been shown to the customer in the past. Loyalty points (i.e. exchange values, which can include coupons, etc.) can be awarded based on an activity of the customer at least partly on the basis of his exposure to certain advertisements which may be displayed on the aforenoted displays.

Game programs can be changed and varied as to degree of difficulty and currency or exchange value price to participate, competition brackets can be set up and varied, thresholds for prizes can be established and varied, prize and premium values can be accumulated for various activities such as plays, purchases, loyalty, and/or timing, customers or players can be authorized or disqualified, advertising can be directed to certain customers or classes of customers, premiums can be accumulated and dispensed and prizes awarded across any kind of commercial or non-commercial activity with controllable interchangeability.

As an example, a customer can receive a coupon at a gasbar (or can play a newspaper game such as by reading an announcement in a newspaper) containing a question to be answered, and if answered correctly at a terminal used in the system described in this specification, a prize (e.g. a coupon for $1000 off the price of a purchase, or the awarding of loyalty points which can be exchanged for merchandise or service at participating or at all merchants) can be awarded by the system, and the accounts of the customer, merchants and administrator incremented or decremented as required.

The present invention thus provides for the first time an efficient way of combining loyalty point and premiums of any (rather than restricted) merchants, allows interchange of loyalty points, and at the same time gathers activity information about the customers of those merchants as an effective commercial measurement

tool, and so that advertising may be targeted and efficiently delivered to those exact customers which can best benefit from the advertising.

By the use of the term merchants, included are merchants not only of merchandise, but also of services including the services of play of various games and contests.

In this specification, the term customer and subscriber will be used synonymously, since a customer which has been registered into the system becomes a subscriber, and it is the registered customer which can accumulate loyalty points.

In accordance with an embodiment of the present invention, a system for controlling a customer reward system comprises a first database which stores customer identifications and accumulated loyalty points awarded to the customer. An administration terminal establishes loyalty point values associated with any of plural predetermined activities, and provides the values and identities of associated activities for storage in a database. A reading terminal determines the identity of a customer at a location of the reading terminal. A first apparatus located in the region of the reading terminal detects an activity of the customer. Second apparatus accesses the second database, looks up the activity of the customer, and deposits corresponding loyalty points in the first database in association with an identification of the customer.

In accordance with another embodiment, a method of controlling a customer reward system comprises distributing identification elements to prospective customers each of which stores an unique customer identification. The presence of an identification element is subsequently detected at a terminal. Identification can be effected by reading a magnetic

stripe on a card, reading a smart card, reading a bar code, voice analysis, eye iris detection, fingerprint or palmprint detection, etc. At least one of currency credits, loyalty point credits and coupon credits is received and stored in a database record associated with a customer identification based on at least one of a currency deposit and an activity undertaken by a customer. The loyalty points and coupon credits had been predetermined by an administrator and are variable depending on the activity undertaken by the customer and at least one of an identity of a merchant or machine which provides a product or a service, a total number or incremental number or skill level of persons which previously availed themselves of a product or service, a time interval or the real time when the product or service is provided, a skill bracket or handicapped skill achieved by the customer of an activity, a handicap attributed to a machine which provides a product or service, an interval since an activity was undertaken by the customer or by plural customers or by customers having a particular demographic profile, and a demographic profile of the customer.

In accordance with another embodiment, a method of controlling a customer reward system comprises: distributing identification elements to prospective customers each of which store unique customer identifications, detecting the presence of an identification element at a terminal, receiving and storing loyalty point credits in a database record associated with a customer identification based on at least one of a currency deposit and an activity undertaken by a customer, redeeming loyalty point credits by any of plural unrelated merchants at any of plural redemption terminals, reporting loyalty point credits and redemptions undertaken by each of the plural merchants to

an administrator terminal via a communication network, and settling credits and redemptions of loyalty points from time to time as between the merchants and administrator, whereby the loyalty points are used as a medium of exchange between the merchants and administrator via the network and the terminals.

In accordance with another embodiment, a method for controlling a customer reward system comprises:

(a) establishing merchant, customer and administrator loyalty point databases,

(b) depositing loyalty points in a designated customer's database or in plural customer databases,

(c) redeeming loyalty points of a customer by a merchant providing a goods or services, and decrementing the database of the customer by a predetermined number of loyalty points and incrementing the database of the merchant by the predetermined number of loyalty points,

(d) decrementing a further predetermined number of loyalty points from the database of the merchant and incrementing the database of the administrator by the further predetermined number of loyalty points.

In accordance with another embodiment, a method for controlling a customer reward system comprises:

(a) establishing merchant, customer and administrator loyalty point databases,

(b) depositing loyalty points in a designated customer's database or in plural customer databases,

(c) redeeming loyalty points of a customer by a merchant providing a goods or services, and decrementing the database of the customer by a first predetermined number of loyalty points and incrementing the database of the administrator by the first predetermined number of loyalty points, and

(d) decrementing a further predetermined number of loyalty points from the database of the administrator

which is smaller than the first predetermined number of loyalty_points and incrementing the database of the merchant by the further predetermined number of loyalty points.

From time to time, in the above cases, values of loyalty points to monetary, merchandise or services values as between merchant and the administrator can be settled.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the invention will be obtained by a consideration of the detailed description below, in conjunction with the following drawings, in which:

Figure 1 is a block diagram of a preferred embodiment of a system on which the present invention can be implemented, and

Figure 2 is a flow chart of call initialization and loyalty point or coupon data interchange.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

U.S. patent 5,083,271 is incorporated herein by reference. This patent describes plural game arcades which are in communication with a central computer, or with one of plural regional computers which communicate with a central computer. The regional computers receive game score data and compute tournament winners, downloading both winner information and advertising to local games at the game arcades.

Turning to Figure 1, in place of the regional computers, regional servers 1A, 1B..1N, etc. are used. Each regional server is located at a separate regional data center, although for convenience of illustration they are all shown in this Figure in data center 3.

Each regional server has a memory containing a corresponding database 5A, 5B..5N coupled to it. In the aforenoted patent, the corresponding memory stores not

only score data, but also values of money on deposit to be credited against the playing of a game, and handicaps of players and/or games. If an activity other than playing a game is to be rewarded, the user activity can similarly be handicapped (for example, awarding of variable numbers of points for use of a particular long distance telephone supplier). In accordance with an embodiment of the invention, the databases 5A, 5B...5N also store specialized data relating to parameters used in a game or activity, such as difficulty levels, points to be awarded for certain game activities, and other functions to be described in more detail below, as well as parameters and content relating to advertising, premiums, loyalty points, etc.

The data to be stored in databases 5A...5N is loaded by a decision support server 7, from data stored in a database 9 with which it communicates.

Validation and redemption terminals 11 are in communication with the regional servers 1A...1N. Each of the terminals 11 is comprised of a card reader 13 and preferably a bar code reader 14, smart card reader, or the equivalent, coupled to a printer 15. The card reader is preferably also a card writer for writing the magnetic stripe on a card and/or for updating, debiting or crediting one or more values stored on a smart card (a card which carries a processor or the equivalent and a memory). The term card reader is used in a general sense, since it can include a keypad or keyboard which can be used by the customer and/or merchant. The customer can also or alternatively be identified by a voice identifier, an eye iris reader, a fingerprint or palmprint reader, a keyed-in identity code such as a PIN number detector, etc., all of which are generically referred to herein as a card reader. The printer is used to print receipts and coupons, preferably including a bar

code or the equivalent. The card reader can be based on the type made by Verifone Corp. for swiping cards and dialing a credit or debit card administration office.

A terminal 11 should be located at the premises of each associated merchant authorized to use the system, and can be located at one or plural arcades 17 or other single or multi-terminal system. A system, which can be, but is not limited to arcade 17 which is similar to the system described in the aforenoted patent is in communication with a corresponding server, in a manner as will be described later. However, rather than each game 19 communicating directly with a regional server via its own interface, it is preferred that it communicate with a regional server through a master game 21, via shell software which uses a particular communication protocol which can encrypt data. This will be described in more detail later. A database 23 is also coupled to the master game 21.

A computer 25, referred to below as a public PC 25, can be in communication with an associated regional server 1A..1N. Preferably a card reader 13, bar code reader 14 and printer 15 are coupled to the computer, as well as a display 27, keyboard 28, game controls (e.g. joystick, mouse, trackball, fingerpad, pedals, etc.) a CD ROM player 29, and a DVD (digital versatile disk) player 31.

An administration office 41 contains a computer terminal 43 preferably operating in a Windows™ software environment, with a display 45. Rather than a Windows™ software environment, any type of operating system can be used, such as one which will operate under control of applets downloaded from the internet or any other network, MacIntosh, OS/2, etc. The terminal 43 includes a database and a processor for controlling parameters of software used in the system, and can communicate with the

decision support server 7 as will be described below.

In operation, games, advertising and parameters relating to loyalty points and/or coupons are downloaded under control of the decision support server 7 to database 9, then are distributed to regional servers 1A..1N, then are downloaded to database 23. Alternatively the games, parameters and/or advertising are stored at the arcade 17 on local mass storage devices such as hard disk drives, digital versatile disks (DVDs) or CD ROMs (or can be stored in a semiconductor or any other form of mass storage memory), and are enabled from data stored in the decision support software. The games, parameters and/or advertising can be provided via applet if desired. In the description below, and only in this example, the games and advertising will be described as being stored on DVDs (in database 23). at the arcade. The database will be considered for this example to be a combination of the local mass storage and semiconductor memory, but it should be understood that the data can alternatively be downloaded from database 5A to 5N coupled to the regional server, and stored for use as needed in the database 23.

It is preferred that the games themselves should be written within a shell, with software "hooks" between the games and shell. The shell should be responsible for starting and stopping the game, altering its parameters, controlling the display of the game that is to be played, and communicating both with other games and with the regional server 1A..1N. It is preferred that each of the games should communicate with the regional server only under control of the master game 21. The software operated by the master game 21 should in addition be designed to communicate with each of the games of the arcade, and with a designated regional server using a communications manager program, in accordance with a

predetermined protocol.

Customer accounts are retained in the database 9, and are preferably comprised of the following fields:

1. Account data (customer name and PIN),

2. Balance of account (in currency), both current balance and pending balance (the latter being the expected balance after an ongoing transaction has been completed),

3. The identity and value of coupons and premiums allocated to the customer,

4. The balance value of loyalty points associated with the customer, e.g. as incremented or decremented by a device such as by an input device at a merchant location (for example by inputting via a keypad connected to the card reader 13 at a validation and redemption terminal 11) or by an administrator via terminal 43 at the administration location 41, or by operating an automatic terminal such as a coin telephone having a swipe card reader in administrative communication with regional server 1A to 1N, a game machine, etc.,

5. Game ratings, such as skill level of the customer for variously played games, handicap values of the customer for variously played games, profiles (e.g. how much time is allocated to the player to complete various games),

6. Viewing history of advertising (e.g. a record of the most recent time that the customer has viewed a particular advertisement),

7. Images displayed for this customer,

8. The identities of identification cards issued to the player,

9. Merchandise orders, e.g. the identity and loyalty point, premium or currency cost of merchandise that has been ordered, the date ordered, the date the order was sent to the supplier, the date the order was shipped,

etc.,

10. The game play history, e.g. for each game played, the rank achieved, number of players in a game or tournament, etc.,

11. Data representing membership of the customer in competitions or teams,

12. Records of payments of fees made by the customer, and

13. Records of customer premiums and/or prizes awarded (which can be used e.g. for tax computation).

The administrator characterizes each game and activity relating to merchant products and services with certain parameters, and downloads these parameters from terminal 43 to server 7. For example;, the administrator establishes game formulae for each game, loyalty points (or none) for playing each game, for patronizing particular merchants, etc.

When a customer is issued an identity (ID) card, a PIN number is issued in a well known manner, and information re its issuance is uploaded from a validation terminal 11 to the associated regional server 1A to 1N. A record in the database 9 relating to this customer is established by server 7. The record is seeded by the parameters provided by the administration terminal to the server 7. For example, upon first initiation of the record, a number of loyalty points can be deposited to the customer, and recorded in the database in field 4.

The customer then pays currency to play say, 5 video games. The payment value is entered by swiping the ID card in a local card reader in the arcade, and by then entering the PIN number of the customer and the number of games to be played, or a currency amount into a local keypad. This amount is stored (deposited) in database field 1 (see the above field list) of database 9, after uploading from the arcade 17 via master game 21.

The customer then goes to the game and swipes his card in a card reader associated with the game. The request to initiate the game is sent to the game from the card reader, and value of the game play is sent to the decision support server 7. Server 7 addresses database 9, and selects the record of the customer from the card number read and provisionally decrements the amount on deposit, storing the resulting pending balance. If the game is not played (e.g. if there is a power outage), the pending balance is again incremented back to the previous balance after a predetermined amount of time. By using a central decision support server 7 and database 9 to store the customer accounts, the customer can be provided with service at any location which communicates with any regional server. A duplicate account is established and retained in the regional support server database 5A..5N, the records being mutually updated (synchronized) from time to time.

At the time of establishment of the record in database e.g. 5A, the server 7 would also store values in the remaining fields of the record. For example, it would store an advertisement value, to be described in more detail below, in field 6, indicating that no ads have been presented to the customer.

After the customer has swiped his card at a game, and thus in this way or in another way described above identifies himself, the local database provides a data message to the local system which enables the selected game. It also enables a DVD to run an advertisement to the game via its shell, which overlays the game in a window, or is presented prior to or with the initial, intermediate or final screens of the game. For example, the initial screen can be a "welcome to a new player" screen, with an advertisement relating to one or another of the associated merchants. The advertisements to be

run are pre-established at the administration terminal 43.

The fact of running a particular advertisement and of the customer being located at a particular game (determined from his ID card) is then stored in the 10th field of the record. When the game has been completed, the score is uploaded to the regional server and the rank of the player is established and is stored in the 10th field. The number of plays of the player of that game, and of other games, are also stored in the 10th field. On the basis of this, depending on the administrator, loyalty points, coupons or premiums can be provided to the customer.

For example, if the customer has achieved a particular score, a predetermined number of loyalty points can be awarded, and added to those in the balance in the 4th field of the database record. A printer 15 can dispense a coupon to the customer e.g. for a discount on a food item at a fast food outlet, the serial number and value of which is recorded in the 3rd field of the record. The printout can also record the score and the game that was played.

The identity of the advertisement which was run is recorded in the 6th field of the record.

The customer in achieving a particular amount of expertise can be handicapped by the software in the regional server 1A, and the handicap value recorded in the 5th field of the record, the rank achieved recorded in the 10th field, and all of this information can be printed on the same ticket as the coupon, or another ticket.

Now assume that the player attends a different arcade, and wishes to play a game. He will swipe his ID card in the local card reader, press a button to command the start of or the identity of the game if necessary, and his identity, a command to play a game and the cost

to play is uploaded to the associated regional server, say server 1B. Server 1B searches its database 5B for a record of the identified customer, and doesn't find it. It then sends an inquiry to the server 7, which sends an inquiry to each of the other regional servers. Server 1A responds, and provides an indication to server 1B that the customer record is stored in a database associated with server 1A.

Server 1A then sends the record of the customer to server 1B via server 7. Server 1B checks whether the second field has sufficient balance to pay for the game. On the indication that it does, a provisional decrement is done as described earlier, and server 1B sends a signal to the master game of the arcade to enable the game.

The server 1B also checks the ad view history and image last viewed, and enables the DVD at the arcade to run the next advertisement in the predetermined sequence of advertisements to the game to be played, via the game shell. The entire process is repeated as described earlier.

In the event the customer has used the local system before, and his identity data, etc. is stored in the local database, the above process can be carried out using the data stored in the local database, rather than using the data stored in the server.

The score can result in loyalty points or premiums being awarded to the player, which are stored in the account of the player.

Assume now that the customer wishes to redeem loyalty points or premiums. The customer can visit a validation and redemption terminal, which can be at the location of a merchant, a public PC, or at an arcade. The ID card of the customer is read, and an attendant types in a request on a local keyboard such as 28 to

obtain the number of loyalty points, or the identities of coupons or premiums held by the customer. This request is uploaded to the regional server, which reads the database e.g. 5A and accesses the record of the customer identified by the card (and PIN number, if desired). On verification by the regional server, the data stored in the fields of the information requested by the attendant are then downloaded to the local terminal, such as computer 25, and is displayed on display 27.

The customer can ask for redemption of the value of the coupon. For example, if the validation and redemption center is at a fast food outlet, and the coupon is for a discount on a hamburger from the fast food outlet, the merchant can sell the hamburger at the required discount, take the coupon from the customer, and key in the coupon on a keypad or read a barcode or magnetic stripe, or the equivalent, carried by the coupon, to identify it and record it as having been redeemed. The local computer or the equivalent then uploads this data to the regional server 1A, which records that the coupon has been rendered.

While this transaction is going on, there could be a display adjacent the redemption equipment. The regional server, in learning of the presence of the customer at that location from the ID card swipe, can then look up the advertisement viewing history from the 6th field of the customer's record in the database, and send a control signal to the computer or the equivalent at the redemption center, to enable a local DVD 31 to run the next advertisement in a predetermined sequence to the display which is adjacent the customer. Loyalty points can be awarded to the identified customer based on viewing a particular advertisement, and stored in the database as described earlier.

In a similar manner, loyalty points can be

redeemed. The customer can attend a redemption center which can be a merchant, or a special catalog store. After swiping the ID card of the customer and keying in a request to display the number of loyalty points accrued to the customer, the regional server e.g. 1A accesses the record of the customer using his ID and PIN number in database e.g. 5A, and downloads the information to a local display. Following redemption of a particular number of loyalty points for the merchandise or services requested, the 4th field of the record of the customer is decremented by the value of the loyalty points redeemed.

It should be noted that the system is global, in that any merchant can have a redemption terminal. Upon redeeming loyalty points which have been accrued by the customer by playing games, viewing advertisements, or using services of other merchants, etc., the redeeming merchant can be owed a certain value based on the redemption. This value or the equivalent in loyalty points, can be stored (credited) in a database 5A related to the merchant. When a customer purchases goods from that merchant, a certain number of loyalty points can be awarded the customer, and the balance debited from the balance of the merchant. Administrator service fees in the form of loyalty points can be accrued to an account of the administrator for each transaction. In this manner, loyalty points become a medium of exchange for the customer, the merchants and the administrator.

Loyalty points or a monetary amount can be decremented from an account of each merchant for each play of its advertisement.

At the end of a predetermined period, for example quarterly, yearly, etc., the administrator and merchants can settle the accounts, e.g. collecting a prescribed monetary value for negative balances of merchant loyalty point accounts, and paying a prescribed monetary value

for positive balances of merchant loyalty point accounts.

Loyalty points can also be redeemed by the customer for any merchandise or service at any merchant location or venue at which a service terminal is located, or for game play at an arcade.

Two types of data interchange are preferably used in the system: synchronous and asynchronous. In synchronous interchanges, the client initiates a connection to a server, sends a request, and await a reply, in a manner similar to credit card authorizations in retail stores. An example of this type of interchange in the present invention is the validation of a prize receipt. Asynchronous interchanges are used for database synchronization. They allow events that have been queued by clients to be sent to servers, and allow servers to add or update information in a client's database.

Four modes of communication between clients and servers are preferred to be used:

- Queries from clients to servers for specific information,
- Events being transmitted from clients to servers,
- Record and file system synchronization transmitted from servers to clients, and
- Interactive on-line traffic, allowing on-line services in which processing is done in real-time by the server, or through a proxy process on the server.

Because of the short duration and unpredictability of query calls, they are preferably implemented with a point-of-sale, packet type transaction type network, with dial-in connections from various client locations using a global toll-free number.

The remaining types of calls are more predictable in nature and duration, typically lasting one or more minutes, and preferably use full duplex stream-oriented

communications. This can be implemented using a dedicated or non-dedicated dial-up line between client and server, using TCP/IP ports (internet or intranet).

Thus each server can initiate two types of connections to client servers: asynchronous dial-in to the transaction network at relatively low speeds (e.g. 2400 baud or higher) for short duration queries, or via a dial-in PPP connection (e.g. 28.8 kbaud or higher) or ISDN to perform sockets-based communication.

The data transmission protocol used is preferred to be bi-directional full-duplex asynchronous communication using X.25-based packet switching, but other communications technologies, e.g. ADSL, can be used, as they become widely available. Prior to application to the network, the event data should be packetized, inserted into variable length telecommunication packets, compressed and encrypted using the encryption key of the location. Other fields in the telecommunication packet need not be compressed or encrypted. The received packets should be decrypted, decompressed, and extracted from the telecommunication packets.

The transmissions are preferably initiated from the transmitting entity (dial-in) rather than being polled. The calls can be normal (e.g. to pass data re start, game plays, alarms, meters, etc. to and from the client, stored in a queue at that location for subsequent transmission), urgent (e.g. such as customer information when a card is swiped), and receipt validation (e.g. to verify calls used by validation terminals).

Terminals communicating within a single location can use 10baseT twisted pair wiring and 802.3 (Ethernet™) standard for data link management, or higher speed Ethernet or other technologies, as they become available. The regional servers can accept connections from either

the point-of-sale transaction network or from a TCT/IP internet/intranet connection (using Berkeley sockets). The same application-layer protocols operate over each connection, with the possible exception of synchronization, which can operate only over TCP/IP connections, if desired.

The four types of packets referred to above can have a number of subtypes, as follows:

Packet Type:	Possible Subtypes:	
Control	Acknowledgment (ACK)	Negative Acknowledgment (NAK)
	Context Negotiation	Ping
	Ping Response	Open Query Link
	Close Query Link	Open IP Link
	Close IP Link	Link Status Request
	Link Status Response	Suspend Processing
	Suspend Processing Response	Resume Processing
	Resume Processing Response	Synchronize
	Synchronize Response	
Query	Test	Test Response
	Receipt Validation	Receipt Validation Response
	Subscriber Information	Subscriber Information Response
	Account Withdrawal	Account Withdrawal Response
	Account Deposit	Account Deposit Response
	Subscriber Account Data Request	Subscriber Account Data Response
	Winning Redemption Play	Winning Redemption Play Response
	Subscriber ID Request	Subscriber ID Response
	Credit/Debit Request	Credit/Debit Response
	Save State Request	Save State Response
	Restore State Request	Restore State Response
	New Subscriber Card Request	New Subscriber Card Response
	Reserve Merchandise	Reserve Merchandise Response
	Purchase Merchandise	Purchase MerchandiseResponse
	Release Merchandise	Release Merchandise Response
	Subscriber Ranking Request	Subscriber Ranking Response
Event	Alarm	Tournament Play
	Redemption Play	Meter Readings
	Ad Statistics	Service Accesses
	Down Times	New Subscriber
	New Team	Issued Coupons
	Loyalty Point Awards	
Synchron-ization	Inventory	Table Download
	File Initial Download	File Next Download
	File Initial Upload	File Next Upload

When a call is connected over the point of sale network or either of the TCP/IP ports, the client and

server exchange context negotiation packets to configure the session communications as shown in Figure 2. When both parties have acknowledged the context negotiation, data packets can begin.

The client sends a context negotiation packet with the settings it wishes to use for the call (including the encryption and compression parameters). This packet also tells the server what type of call this is (e.g. events, queries, etc.): The server examines the context negotiation packet and determines whether the values are acceptable. If so, it sends a context negotiation packet with the same settings to the client. The client acknowledges this packet to the server, and the call is considered to be established.

If the server cannot use the context provided by the client, it sends its own context negotiation packet back to the client with its preferred settings (e.g. a "lower" standard for compression or encryption). If the client agrees with these settings, it sends an acknowledgement to the server, and the call is considered to be established.

The contents of the context packet are sent uncompressed, but encrypted using the terminal's 16 byte license key and a TEA encryption algorithm. The terminal cannot operate unless the license key entered at the machine matches the key entered through the server administrative application.

If a device receives a context packet for an encryption method it can perform, it can NAK (unacknowlege) the packet. The server should retransmit session key packets, working from best to worst encryption (retrying a number of times in case of communications faults) until the client returns an acknowledgement. If the client never acknowledges the packet, the server should close the connection.

Likewise, if the server never acknowledges the packet from the client, the client can close the connection. The client is free to retry with a new socket on the same call.

When a connection is established over the asynchronous point of sale link, the client may immediately begin transmitting data packets to the server. Then a PPP connection is established, the client should create a socket connection to one of the TCP ports listed above. Packets can then be sent over this socket connection. Multiple socket connections can be opened to allow parallel processing of synchronization, event and query traffic.

Query exchanges preferably occur in lockstep over a single connection. When a terminal issues a query, it waits on the same connection for a matching query response to arrive. The terminal then processes the query response, sends an acknowledgement, then closes the connection or continues with other query exchanges.

If a query initiates the download of table and/or file information to the client, the downloads should take place before the server sends the query response. When the query response is received at the client, it can assume that all downloads are complete.

Event transfer from clients to servers follows a lockstep acknowledgement cycle in which the client sends event packets and the server sends acknowledgement or nonacknowledgement packets in response. Events should remain in the client's event queue until an acknowledgement has been received from the server. When all events have been sent and acknowledged, the client can close the connection.

When a client makes a synchronization call, the client and server begin by exchanging inventory packets. The client sends an inventory of all data currently

loaded, and the server sends an inventory of what the client should have (including table records and files).

The client should use the server's inventory to delete all records and files that are not present at the server. The server should use the client's inventory to build a set of table and file download packets to send new information to the client.

Once the inventories have been exchanged, the server should begin sending table and file download packets. The client should respond to these with either an acknowledgment or nonacknowledgement packet. When the server has sent all records, it should send a table download packet with 0 records to indicate the end of data. The client is free to close the connection at this point.

All packets should be framed with a consistent header and trailer, to allow the protocol processor in the receiving server or terminal to distinguish between different versions of requests. A preferred packet is as follows:

Offset:	Field Size:	Description:
0	Byte	Packet type - the following values are defined: 0x80 = Control Packets 0x81 = Query Packets 0x82 = Event Packets 0x83 = Synchronization Packets Note that the high bit is used to distinguish these packets from earlier version packets.
1	Byte	Subtype - the following values are defined: Control Packets: 0 = Acknowledgment 1 = Negative Acknowledgment 2 = Context Negotiation 3 = Ping 4 = Ping Response 5 = Open Query Link 6 = Close Query Link 7 = Open IP Link 8 = Close IP Link 9 = Request Link Status 10 = Link Status Response 11 = Suspend Processing 12 = Suspend Processing Response 13 = Resume Processing

14 = Resume Processing Response
15 = Synchronize
16 = Synchronize Response

Query Packets:

0 = Test
1 = Test Response
2 = Receipt Validation
3 = Receipt Validation Response
4 = Customer Information
5 = Customer Information Response
6 = Account Withdrawal
7 = Account Withdrawal Response
8 = Account Deposit
9 = Account Deposit Response
10 = Customer Account Data Request
11 = Customer Account Data Response
12 = Winning Redemption
13 = Winning Redemption Response
14 = Customer ID Request
15 = Customer ID Response
16 = Credit Debit Request
17 = Credit Debit Response
18 = Save State Request
19 = Save State Response
20 = Restore State Request
21 = Restore State Response
22 = New Customer Card Request
23 = New Customer Card Response
24 = Reserve Merchandise
25 = Reserve Merchandise Response
26 = Purchase Merchandise
27 = Purchase Merchandise Response
28 = Release Merchandise
29 = Release Merchandise Response
30 = Customer Ranking Request
31 = Customer Ranking Response

Event Packets:

0 = Alarm
1 = Tournament Play
2 = Redemption Play
3 = Meter Readings
4 = Ad Statistics
5 = Service Accesses
6 = Down Times
7 = New Customer
8 = New Team
9 = Issued Coupons
10 = Loyalty Point Awards

Synchronization Packets:

0 = Inventory
1 = Table Download
2 = File Initial Download
3 = File Next Download
4 = File Initial Upload

			5 = File Next Upload
2	2 bytes		Packet size (in bytes, including the type, subtype, size and CRC fields), LSB first
4	N bytes		Data (see individual packet description for format)
4+N	2 bytes		CRC of packet.

Acknowledgment packets indicate the successful receipt of information. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x00
2 bytes	Packet Size = 6
2 bytes	CRC

Negative Acknowledgment (NAK)

Negative Acknowledgment packets indicate that a transmission was unsuccessful or that the receiver encountered an error processing the data. The total size of the framed packet will be 7 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x01
2 bytes	Packet Size = 7
1 byte	Failure Code 0 Generic failure 1 System error 2 Allocation failure 3 Invalid Request 4 Communications error
2 bytes	CRC

Context Negotiation

Context Negotiation packets have the following data structure:

Field Size:	Description:
1 byte	Packet type = 0x80
1 byte	Packet Subtype = 0x02
2 bytes	Packet Size = 40+
4 bytes	Location ID (LSB first)
6 bytes	Terminal ID
[BEGIN ENCRYPTED AREA]	
16 bytes	License Key
1 byte	Connection type
1 byte	Encryption type
1 byte	Transmission Sequencing

2 bytes	Key Length (in bytes, LSB first)
N bytes	Key Data

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]

2 bytes	CRC

Location ID will be 0 in packets from the client. It will be filled in with packets from the server with the location ID configured for the terminal ID from the client, or 0 if the terminal is not configured in any location. Terminals that are not configured in any location can still access the server for some limited functions. However, if the licensing information is not correct, the server will never send a Context Negotiation packet to the client.

The licence key is a value entered through the user interface at the terminal, and entered by the operator when configuring the machine in the administrative application. It is used to encrypt the encrypted area of the Context Negotiation packet. When the packet is received, the receiving node decrypts the encrypted area with its stored license key, then compares that key with the decrypted version from the packet. If the two do not match, the machine is not licensed correctly and the Context Negotiation will not succeed until this is corrected. At the terminal, a message indicating incorrect license information should be displayed or printed. At the server, the event will be logged for reporting and/or alarming.

The connection type will be one of the packet type codes (0x80 through 0x83) indicating the type of connection being made. This will indicate to the server which protocol processor to launch for the connection. Note that if more that one type of activity needs to occur on one connection, the client can send a Context Negotiation packet during the call to renegotiate the call type (and other parameters of the connection as

well.) When this occurs, all in-progress operations are completed then renegotiation occurs.

The Encryption type field will be one of the following values:

Value	Description
0	No encryption
1	XOR of key and plain text
2	Earlier Protocol Version encryption
3	TEA (see Appendix A for algorithm)
4	IDEA
5	RSA

Transmission sequencing will be one of the values below:

Value	Description
0	Lockstep (send packet, wait for Ack, send next packet)

The contents of the key data will depend on the encryption type as shown here:

Encryption Type:	Key Length and Key Data:
0	data will be included
1	Key length will be 0, and no
2	Key length and key data can vary
3	Key length and key data can vary
4	Key length is 16, key data can vary
5	Key length is 5, key data can vary
	Key length and key data can vary

For connections between terminals within a single location, or between processes on a single terminal, the terminal ID and location ID are both set to 0. The contents of the packet will not be encrypted and should have the following values:

Encryption type = 0

Transmission Sequencing = 0

Key length = 0

This type of connection is only valid on LAN segments or between processes on a single machine.

The license key field will be filled by the terminal's license key. This allows the server process to enforce unique license keys and prevent services from

establishing their own connections to the server without their own valid license keys.

Ping

Ping packets are used to test communications to the server. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x03
2 bytes	Packet Size = 6
2 bytes	CRC

Upon receipt of a Ping packet, the server will immediately generate a Ping Response packet and send it to the client. This does not require any database or file system access, and can be used to test the basic connection between client and server processes.

Ping Response

Ping Response packets are sent in reply to a Ping packet. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x04
2 bytes	Packet Size = 6
2 bytes	CRC

Open Query Link

A request that a link to the server be created that is capable of supporting query traffic (or increases the reference count of an existing link). The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x05
2 bytes	Packet Size = 6
2 bytes	CRC

This operation is intended for use between slave and master terminals within a location or between processes on a single terminal. On receipt of this

packet, the recipient should establish a connection to the server suitable for query traffic. This may mean forwarding a similar request to the next higher server in the hierarchy.

If there is already a link established, its reference count is incremented.

Close Query Link

A request that a link to the server established by an Open Query Link request be closed (or the reference count of the link be decremented). The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x06
2 bytes	Packet Size = 6
2 bytes	CRC

Open IP Link

A request that a link to the server be created that is capable of supporting IP traffic (or increases the reference count of an existing link.) The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x07
2 bytes	Packet Size = 6
2 bytes	CRC

This operation is intended for use between slave and master terminals within a location or between processes on a single terminal. On receipt of this packet, the recipient should establish a connection to the server suitable for all types of traffic. This may mean forwarding a similar request to the next higher server in the hierarchy.

If there is already a capable link established, its reference count is incremented.

Close IP Link

A request that a link to the server established by

an Open IP Link request be closed (or the reference count to the link be decremented). The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x08
2 bytes	Packet Size = 6
2 bytes	CRC

Request Link Status

A request for the current link status. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x09
2 bytes	Packet Size = 6
2 bytes	CRC

When a server receives this request, it should respond with the status of the link to the main ADMIN server group. This may mean forwarding a similar request to the next higher server in the hierarchy.

Link Status

Returns to the current link status. Sent in response to a Request Link Status packet. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x0A
2 bytes	Packet Size = 7
1 byte	Link Status

Low order nibble is current link status
- 0x00 Link state unknown (indicates an error)
- 0x01 Link is idle
- 0x02 Connecting asynchronous
- 0x03 Connecting asynchronous, IP request pending
- 0x04 Connecting IP
- 0x05 Connected asynchronous
- 0x06 Connected asynchronous, IP request pending
- 0x07 Connected IP

High order nibble is modem state (if applicable)
- 0x00 Modem idle (or no modem in link)
- 0x10 Modem is dialing
- 0x20 Modem is waiting for answer
- 0x30 Modem is connected
- 0x40 Modem is authenticating

High bit indicates processing is suspended
- 0x80 Processing suspended

1 byte	Query Status High bit is one if a query is in progress Bits 0-6 indicate the percentage complete
1 byte	Event Status High bit is one if an event exchange is in progress Bits 0-6 indicate the percentage complete
1 byte	Synchronization Status High bit is one if a database synchronization is in progress Bits 0-6 indicate the percentage complete
2 bytes	CRC

The fields in the response packet relating to query, event and synchronization status are relevant only when the server process is running on a master terminal within a location. All other servers will return 0 for these three fields.

Suspend Processing

Requests that the communications process on the master terminal suspend any activity that could impact system performance. This prevents service degradation to ensure fair tournament play. The total size of the framed packet will be 10 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x0B
2 bytes	Packet Size = 10
4 bytes	Time-out (seconds)
2 bytes	CRC

Suspend Processing Response

Sent by the communications process on a master terminal in response to a Suspend Processing request packet, indicating that the processing will be suspended as soon as possible. The client can use Get Link Status to determine when processing has been suspended. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x0C
2 bytes	Packet Size = 6
2 bytes	CRC

Resume Processing

Informs the communications process on a master terminal that normal processing can be resumed. This should be performed after a time-critical operation has completed, and should balance each Suspend Processing packet. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x0D
2 bytes	Packet Size = 6
2 bytes	CRC

Resume Processing Response

Sent by the communications process on a master terminal in response to a Resume Processing request packet, indicating that normal processing will be resumed. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x0E
2 bytes	Packet Size = 6
2 bytes	CRC

Synchronize

Requests that the communications process on a master terminal initiate a synchronization with its server. Different levels of synchronization can be requested in the flags field. Note that the communications process should perform a full synchronization on startup and again every few hours automatically (depending on the dial in interval configured for the location). The total size of the framed packet will be 7 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x0F
2 bytes	Packet Size = 7
1 byte	Flags Defined bits include: 0x01 Scan file system and update

		W_CONTENT_CACHE table
	0x02	Synchronize the database with the server
	0x04	Synchronize subscriber records in cache
	0xFF	Do full synchronization
2 bytes	CRC	

Synchronize Response

Sent by the communications process on the master terminal in response to a Synchronize packet, indicating that the process will begin the synchronization as soon as possible. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x10
2 bytes	Packet Size = 6
2 bytes	CRC

Receipt Validation

Receipt validation packets are traditionally sent by validation terminals, but can be sent by any authorized terminal. Receipt IDs are printed on all receipts or coupons generated at terminals. The receipt ID is printed in two formats - a bar-code symbol using the Code 39 symbology, and a 15-digit numerical string, printed in 5 groups of 3 digits.

This packet is also used to redeem receipts and loyalty points the subscriber has on account. This is typically done by game terminals, following a Subscriber Account Information query to gather the current account information.

Receipt validation packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x02
2 bytes	Packet Size = 30
[BEGIN ENCRYPTED AREA]	
6 bytes	Validating Terminal ID
1 byte	Receipt ID length (10 or 15)
N bytes	Receipt ID

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes CRC

The length of the receipt data governs its format. The formats supported, and their lengths, are shown here:

Length:	Format:
10	10 Code-39 Bar-code symbols, as read from the printed receipt
14	4-byte value representing the loyalty program ID 4-byte value representing the number of points being redeemed 4-byte value representing the subscriber ID 2-byte value representing the PIN
15	15 decimal digits, as printed on the receipt
16	10 Code-39 Bar-code symbols, as read from the printed coupon 4-byte value representing the subscriber ID 2-byte value representing the PIN
21	15 digit receipt ID of coupon being redeemed 4-byte value representing the subscriber ID 2-byte value representing the PIN

The receipt ID should appear in the packet in the same order as entered or scanned from the receipt. For numeric IDs, send the ASCII code for each digit. For bar-code format, send the ASCII codes for the bar-code symbols as defined in the Code 39 bar-code symbology.

Receipt Validation Response

When the server receives a Receipt Validation query, it will attempt to validate the receipt ID in the packet, and will return this response packet with the results.

Receipt validation response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x03
2 bytes	Packet Size = 14 or 22
[BEGIN ENCRYPTED AREA]	
1 byte	Status indicator 0 = Coupon valid-payment authorized 1 = Coupon not found on server 2 = System error 3 = Coupon already redeemed 4 = Insufficient loyalty points

		5 = Invalid loyalty program
		6 = Subscriber not found
		7 = Invalid PIN
		8 = Subscriber account frozen
15 bytes	Authorization code (only present if status=0)	
(Pad encrypted area to even 8-byte boundary with zeros)		
[END ENCRYPTED AREA]		
2 bytes	CRC	

The authorization code will be an ASCII string consisting of digits only. It will always contain 15 digits.

Subscriber Information

Subscriber information queries are sent by clients when a subscriber logs on to a terminal and that subscriber's information is not in the local database cache. This query will cause table and file downloads between the query and the response.

Subscriber information request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x04
2 bytes	Packet Size = 38
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID requesting the information
1 byte	Card type used in the request
	1 = ADMIN card
	2 = Credit card
	3 = Debit card
	4 = Name
	5 = Name and SSN
16 bytes	Card data
2 bytes	PIN
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

If the card type is 1 (ADMIN Cards), the card data should be filled with the 10-digit ID read from the NANI card followed by 6 spaces.

If the card type is 2 or 3 (Credit or Debit card), the card data field should be the data read from the PAN

field on the card stripe (either track or track 2).

If the card type is 4 (Name), the card data field should be filled with 14 characters of the player's name followed by 2 spaces.

If the card type is 5 (Name and SSN), the card data field should be filled with 10 characters of the player's name followed by a 4-byte representation of the players SSN (treated as an integer, stored LSB first), followed by 2 spaces. This is the only case in which non-ASCII data is stored in the card data field.

Subscriber Information Response

When the server received a request for subscriber information, it will collect the information about the subscriber (if found) into table and file download packets, and transmit them to the client. When all downloads are complete, this response packet will be sent to the client. If there is an error or if the subscriber is not found in the server's database, this response will be transmitted right away.

Subscriber information response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x05
2 bytes	Packet Size = 14 or 22
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID requesting the information
1 byte	Status Indicator 0 = Information found - subscriber valid 1 = Information not found 2 = System error 3 = Invalid PIN
4 bytes	Subscriber ID (only present if status = 0)
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

If status is 0 or 3, this packet will be preceded by a one or more table and/or file download packets

containing the subscriber information. When the response packet is received, all subscriber data will have been downloaded to the terminal. Responses with status codes 1 or 2 will be returned right away.

Account Withdrawal

This query is sent by clients when a subscriber requests a withdrawal of money currently on account.

Account withdrawal packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x06
2 bytes	Packet Size = 22
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID requesting the transaction
4 bytes	Subscriber ID
2 bytes	PIN number entered by subscriber
4 bytes	Amount to be withdrawn (in US cents)
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

The server will enforce limits on the maximum and minimum amounts for which a withdrawal can be made.

Account Withdrawal Response

When an account withdrawal request is made, the server will attempt to perform the withdrawal, then will send this response packet to the client with the results.

Account withdrawal response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x07
2 bytes	Packet Size = 22 or 38
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID performing the withdrawal
4 bytes	Subscriber ID
1 byte	Status indicator 0 = Withdrawal authorized 1 = Insufficient funds 2 = Subscriber not found on server 3 = Invalid PIN 4 = Account frozen 5 = System error

	6 = Invalid amount
15 bytes	Authorization ID for withdrawal (only present if status = 0)
4 bytes	New account balance, in US cents (only present if status = 0)

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]

2 bytes	CRC

Account Deposit

This query is sent by the clients when a subscriber requests a deposit of money to his or her own ADMIN account.

Account deposit packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x08
2 bytes	Packet Size = 22

[BEGIN ENCRYPTED AREA]

6 bytes	Terminal ID requesting the transaction
4 bytes	Subscriber ID
2 bytes	PIN number entered by subscriber
4 bytes	Amount to be deposited (in US cents)

[END ENCRYPTED AREA]

2 bytes	CRC

Account Deposit Response

When an account deposit request is made, the server will attempt to perform the deposit, then will send this response packet to the client with the results.

Account deposit response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x09
2 bytes	Packet Size = 22 or 38

[BEGIN ENCRYPTED AREA]

6 bytes	Terminal ID performing the withdrawal
4 bytes	Subscriber ID
1 byte	Status indicator
	0 = Deposit accepted
	1 = Account limit exceeded
	2 = Subscriber not found on server
	3 = Invalid PIN
	4 = Account frozen
	5 = System error

	6 = Invalid amount
15 bytes	Authorization ID for deposit (only present if status = 0)
4 bytes	New account balance, in US cents (only present if status = 0)

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]

2 bytes	CRC

Subscriber Account Data Request

This query is sent by clients when a subscriber requests a full report on his or her current account status.

Subscriber account data request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0A
2 bytes	Packet Size = 22

[BEGIN ENCRYPTED AREA]

6 bytes	Terminal ID
4 bytes	Subscriber ID
2 bytes	PIN

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]

2 bytes	CRC

Subscriber Account Data Response

When the server received an account data request, it collects the information about the subscriber's account and sends this response packet.

Subscriber account data response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0B
2 bytes	Packet Size = 22 or 38+

[BEGIN ENCRYPTED AREA]

6 bytes	Terminal ID
4 bytes	Subscriber ID
1 byte	Status Indicator 0 = Success 1 = Account Frozen 2 = Subscriber not found 3 = Invalid PIN 4 = System error
4 bytes	Account balance (in US cents)(on success)
4 bytes	Amount withdrawn pending confirmation (in US

```
                cents) (on success)
        2 bytes     Number of outstanding orders (on success)
            6 bytes     Order ID (on success)
           40 bytes     Item name (on success)
            4 bytes     Date and time order received (on success)
            4 bytes     Date and time order sent to supplier (on
                        success)
            4 bytes     Expected ship date and time (on success)
            4 bytes     Date and time order shipped (on success)
            4 bytes     Date and time order canceled (on success)
        2 bytes     Number of coupons (on success)
            4 bytes     Coupon ID (on success)
           40 bytes     Description (on success)
            6 bytes     Receipt ID (on success)
            4 bytes     Face value (on success)
            4 bytes     Expiration date (on success)
        2 bytes     Number of loyalty programs (on success)
            4 bytes     Loyalty program ID (on success)
           40 bytes     Loyalty program name (on success)
           20 bytes     Loyalty point label (on success)
            4 bytes     Number of points (on success)
        (Pad encrypted area to even 8-byte boundary with zeros)
        [END ENCRYPTED AREA]
        2 bytes     CRC
```

Winning Redemption Play

When a redemption game has been played that awards a prize, and the prize has a limited number of units available (a non-zero value for the NUM_REMAINING field in the database), or that wins a prize that includes a pool amount, the terminal should immediately issue this query to update its local prize information.

This packet permits prize pools to be maintained across several locations, without the chance that more prizes that are available will be given out. It also allows the server to update the local pool value so players can see pool contributions from multiple locations.

Winning redemption play packets have the following data structure:

```
Field Size:  Description:
1 byte       Packet Type = 0x81
1 byte       Packet Subtype = 0x0C
2 bytes      Packet Size = 38+
[BEGIN ENCRYPTED AREA]
4 bytes      Subscriber ID playing the redemption game (LSB
             first)
6 bytes      Terminal ID on which the redemption game was played
4 bytes      Service ID on which redemption game was played (LSB
```

```
                first)
    1 byte      Player Station(8 bit flags, position 0 = station 1,
                etc.)
    1 byte      Active Stations (8 bit flags, position 0 = station
                1, etc.)
    4 bytes     Start Date and Time (UTC format, LSB first)
    4 bytes     End Date and Time (UTC format, LSB first)
    1 byte      Flags
                     0x01  Equipment failed during game
                     0x02  Score is invalid
    1 byte      Number of statistics (n)
    [BEGIN REPEATING LIST]
            4 bytes   Statistic ID (LSB first)
            4 bytes   Statistic Value (LSB first)
    [END REPEATING LIST]
    1 byte      Number of redemption games entered with the play
                (m)
    [BEGIN REPEATING LIST]
            4 bytes   Redemption ID (LSB first)
            2 bytes   Par level beaten (LSB first)
            4 bytes   Par score beaten (LSB first)
            4 bytes   Derived score achieved by subscriber (LSB
                      first)
            4 bytes   Prize ID awarded (LSB first)
    [END REPEATING LIST]
    (Pad encrypted area to even 8-byte boundary with zeros)
    [END ENCRYPTED AREA]
    2 bytes     CRC
```

The subscriber ID may be 0 if the redemption game is unidentified.

Winning Redemption Play Response

When a winning redemption play query is received at the server, it will adjust the number of the awarded prizes remaining (if that number is limited), and/or it will calculate the pool amount to award to the player based on the current value of the collective prize pool. (If the par level has an associated pool amount). It will send this response packet back to the terminal, indicating the amount of the pool the player should be awarded and updating the pool value and number of prizes remaining as appropriate.

Winning redemption play response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0D
2 bytes	Packet Size = 14+

```
[BEGIN ENCRYPTED AREA]
4 bytes          Current pool value (LSB first)
1 byte           Number of par levels being updated (n)
[BEGIN REPEATING LIST]
        4 bytes      Redemption ID being updated (LSB
                     first)
        2 bytes      Par level being updated (LSB first)
        4 bytes      New pool value (after award) (LSB
                     first)
        4 bytes      Pool amount to award (LSB first)
        4 bytes      Number of prizes remaining (LSB
                     first)
[END REPEATING LIST]
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes       CRC
```

Subscriber ID Request

A subscriber ID request is used when a terminal needs to register a new player who does not have a NANI card. It generates a unique, unassigned subscriber ID that the player's card data can be associated with.

Subscriber ID request packets have no data. The packet header is sufficient to convey the request.

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0E
2 bytes	Packet Size = 6
2 bytes	CRC

Subscriber ID Response

Upon completion, this request will have registered this ID as "allocated but unassigned". When the player registers, the terminal should send in a New Subscriber Event to assign the ID to the player.

Subscriber ID response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0F
2 bytes	Packet Size = 14
[BEGIN ENCRYPTED AREA]	
1 byte	Status Code 0 = Success 1 = Failure
4 bytes	Subscriber ID (only present on success)

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes CRC

Credit/Debit Request

This request is issued by a terminal when a player presents a credit or debit card and requests that money be transferred on to the terminal for play, or into the player's account.

Credit/debit request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x10
2 bytes	Packet Size = 46
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID requesting the transaction
4 bytes	Subscriber ID
2 bytes	PIN (LSB first)
1 byte	Card format (FC from track 1 stripe)
16 bytes	Card data (PAN code from track 1 stripe)
4 bytes	Expiration date (4 bytes of addition data from track 1 stripe)
2 bytes	Debit PIN (LSB first, zero for credit cards)
4 bytes	Amount to be withdrawn (in US cents, LSB first)
1 byte	Disposition 0 = Place in subscriber account 1 = Credit local terminal
(pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

The card format, card data and expiration date fields should all appear exactly as read from the magnetic stripe on the card. The PIN should be entered by the player for debit cards only.

Credit/Debit Response

When a credit/debit request is received at the server, it will validate the player's subscriber information and eligibility to perform this type of request, then will attempt to authenticate the request through a credit processing system. Finally, it will

transmit this response packet to the terminal with the results.

Credit/Debit response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x11
2 bytes	Packet Size = 22 or 46
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID performing the transaction
4 bytes	Subscriber ID
1 byte	Status indicator 0 = Credit approved 1 = Invalid card 2 = Credit limit exceeded 3 = Account would exceed limit 4 = Account frozen 5 = Invalid amount 6 = Invalid PIN 7 = Subscriber not found 8 = System error
1 byte	Disposition (only present if status = 0) 0 = Placed in subscriber account 1 = Credit local terminal
4 bytes	Amount (only present of status = 0)
15 bytes	Authorization ID for the transaction (only present if status = 0)
4 bytes	New account balance (only present if status = 0)
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

The terminal ID and subscriber ID will be copied from the request packet, to verify that the response matches the request. The authorization ID will consist of 15 ASCII digits.

Save State Request

This request is used when a player wants to save the state of a game or other service (including the user interface shell) for later restoration (on this or another terminal).

Save State request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x12
2 bytes	Packet Size = 46
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the state is being saved
4 bytes	Subscriber ID
2 bytes	PIN
4 bytes	Service ID
1 byte	Slot Number
20 bytes	Save State Name
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

This packet is sent to the server to obtain a File ID. That file ID can then be used to upload the save state file to the server.

Save State Response

When the server receives a save state request packet, it allocates a file ID for the save state and returns the ID to the terminal in this response packet. It also provides the terminal with a pathname that the terminal should move the file to. This will ensure the integrity of the subscriber cache.

Save State response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x13
2 bytes	Packet Size = 22
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the state is being saved
4 bytes	Subscriber ID
1 byte	Status Indicator 0 = Ready for upload 1 = Account storage allocation exceeded 2 = Subscriber not found on server 3 = Invalid PIN 4 = Service not found on server 5 = Account frozen 6 = System error
4 bytes	File ID (only present if status = 0)

60 bytes Local pathname (only present if status = 0)
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes CRC

The terminal ID and subscriber ID will be copied from the request packet, to verify that the response matches the request.

The terminal is then free to use the file upload protocol to send the file.

Restore State Request

This request is issued when a player wants to restore a state that was saved previously on this or another terminal. The server will return the File ID of the save state file, and if the download flag indicates a download is required, it will download the save state file between the request and the response.

Restore State request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x14
2 bytes	Packet Size = 30
[BEGIN ENCRYPTED AREA] = 17	
6 bytes	Terminal ID on which the state is being restored
4 bytes	Subscriber ID
2 bytes	PIN
4 bytes	Service ID
1 byte	Slot number
1 byte	Download flag 0 = Do not download the save state file 1 = Download the file if it exists
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

Even if the file exists on the local machine, this request should be made before the player is allowed to load it, to assure the player is authenticated as the owner of the data, and also to verify the File ID of the save state file as stored in the SUBSCRIBER_SAVE_STATE

table.

Restore State Response

When the server received a restore state request, it will search for the saved state data, validate the integrity of the file, and return the file ID to the client. If the client requested a download of the file, the file will be transmitted before the response is returned.

Restore State response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x15
2 bytes	Packet Size = 14
[BEGIN ENCRYPTED AREA]	
1 byte	Status Indicator 0 = Permission to use save state granted 1 = Requested save state not found on server 2 = Subscriber not found on server 3 = Invalid PIN 4 = Service not found on server 5 = Account frozen 6 = System error
4 bytes	File ID (only present if status = 0)
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

New Subscriber Card Request

This request is used to associate a new card number with an existing subscriber. This allows players to use multiple cards (including their name or name/SSN combination) to identify themselves to the network.

This request will succeed only if the new card ID is unique throughout the entire ADMIN network.

New Subscriber Card request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x16
2 bytes	Packet Size = 38
[BEGIN ENCRYPTED AREA]	

```
6 bytes      Terminal ID
4 bytes      Subscriber ID
2 bytes      PIN
1 byte       Card Type
                1 = NANI card
                2 = Credit card
                3 = Debit card
                4 = Name
                5 = Name and SSN
16 bytes     Card Data
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes      CRC
```

New Subscriber Card Response

When a new subscriber card request is received by the server, it will validate the uniqueness of the card data and create a new card record for the subscriber, returning the result in this packet.

New Subscriber Card response packets have the following data structure:

```
Field Size:  Description:
1 byte       Packet Type = 0x81
1 byte       Packet Subtype = 0x17
2 bytes      Packet Size = 22
[BEGIN ENCRYPTED AREA]
6 bytes      Terminal ID
4 bytes      Subscriber ID
1 byte       Status indicator
                0 = Card added successfully
                1 = Card is registered to another
                    subscriber
                2 = Subscriber not found on server
                3 = Invalid PIN
                4 = Card already registered to this
                    subscriber
                5 = Account frozen
                6 = System error
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes      CRC
```

Reserve Merchandise

Reserve merchandise request packets are used to reserve an item of merchandise. The requester can specify attribute values for the item, which the server will try to match.

Reserve merchandise request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x18
2 bytes	Packet Size = 38+
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID
4 bytes	Subscriber ID
2 bytes	PIN
4 bytes	Item ID to reserve
4 bytes	Quantity to reserve
4 bytes	Price Offered
1 byte	Number of attributes
1 byte	Attribute ID
2 bytes	Attribute data size
Variable	Attribute data
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

Reserve Merchandise Response

Reserve Merchandise response packets indicate to the requester whether the reservation was successful, and if so, what the actual attribute values of the reserved item is. If the requested quantity could not be met, the largest quantity that could be reserved is returned.

Reserve Merchandise response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x19
2 bytes	Packet Size = 38+
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID
4 bytes	Subscriber ID
4 bytes	Item ID being reserved
1 byte	Status code
	0 Reservation successful
	1 No items remain in inventory
	2 Invalid request
	3 System error
4 bytes	Quantity reserved (on success)
4 bytes	Price of reserved items (on success)
6 bytes	Reservation ID (on success)
1 byte	Number of attributes
1 byte	Attribute ID

2 bytes	Attribute data size
Variable	Attribute data

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes CRC

Purchase Merchandise

Purchase merchandise request packets are used to purchase merchandise that was previously reserved with a Reserve merchandise query. The requester can specify attribute values for the item, which the server will try to match.

Purchase merchandise request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x1A
2 bytes	Packet Size = 30+

[BEGIN ENCRYPTED AREA]

6 bytes	Terminal ID
4 bytes	Subscriber ID
2 bytes	PIN
6 bytes	Reservation ID (on success)
4 bytes	Purchase price

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes CRC

Purchase Merchandise Response

Purchase Merchandise response packets verify to the requester that the purchase has been processed by the server and that the money should be deducted from the player's funds (either account fees or cash).

Purchase merchandise response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x1B
2 bytes	Packet Size = 22 or 30

[BEGIN ENCRYPTED AREA]

6 bytes	Terminal ID
4 bytes	Subscriber ID
1 byte	Status code
	0 Purchase successful
	1 No items remain in inventory

```
                    2     Invalid request
                    3     System error
    6 bytes      Order ID (on success)
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes      CRC
```

Release Merchandise

Release merchandise request packets are used to release merchandise that was previously reserved with a Reserve merchandise query. The requester can specify attribute values for the item, which the server will try to match.

Purchase merchandise request packets have the following data structure:

```
Field Size:  Description:
1 byte       Packet Type = 0x81
1 byte       Packet Subtype = 0x1C
2 bytes      Packet Size = 30
[BEGIN ENCRYPTED AREA]
6 bytes      Terminal ID
4 bytes      Subscriber ID
2 bytes      PIN
6 bytes      Reservation ID (on success)
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes      CRC
```

Release Merchandise Response

Release merchandise response packets verify to the requester that reserved merchandise has been released.

Purchase merchandise response packets have the following data structure:

```
Field Size:  Description:
1 byte       Packet Type = 0x81
1 byte       Packet Subtype = 0x1D
2 bytes      Packet Size = 30
[BEGIN ENCRYPTED AREA]
6 bytes      Terminal ID
4 bytes      Subscriber ID
6 bytes      Reservation ID
1 byte       Status code
                0     Release successful
                1     Invalid request
                2     System error
```

(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes CRC

Subscriber Ranking Request

A request for a subscriber's current ranking in one or more tournament brackets. This can be used to request ranking in brackets that have ended and are beyond their posting period.

Subscriber ranking request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x1D
2 bytes	Packet Size = 30+
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID
4 bytes	Subscriber ID
2 bytes	PIN
1 byte	Number of tournament brackets
4 bytes	Tournament ID
1 byte	Bracket ID
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

Subscriber Ranking Response

The response to the subscriber ranking request packet. This packet contains the subscriber's current position and ranking score in each of the requested tournament brackets that the subscriber has participated in. If the subscriber has not yet played in one of the requested brackets, or the bracket is not found on the server, it will not be included in the list.

Subscriber ranking response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x1E
2 bytes	Packet Size = 22
[BEGIN ENCRYPTED AREA]	
1 byte	Status
	0 = Query succeeded
	1 = Account frozen

2 = Subscriber not found
3 = Invalid PIN
4 = System error

4 bytes Subscriber ID
1 byte Number of tournament brackets
4 bytes Tournament ID
1 byte Bracket ID
2 bytes Rank
4 bytes Score
4 bytes Score Date and Time
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes CRC

Event Packets

Event packets are transmitted on sockets connected to the Event services IP port, or over an asynchronous POS network connection. In either case, they use a transmit-ack lockstep exchange. The client transmits an event packet, the server responds with an Ack. If the server does not respond within 1 second, the client resends the event packet up to 5 times, then fails and moves on to its next event. If the server sends a Nak, the packet should be resent right away. These timeouts may need to be tuned for Internet-based transmission.

The entire data portion of the event packet is encrypted using the encryption parameters negotiated for the connection.

Alarm

Alarm event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x00
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID of the machine reporting the alarm
2 bytes	Alarm code being reported (LSB first). Currently defined values are shown below.
4 bytes	Time the alarm was reported (UTC format, LSB first)
1 byte	Flag indicating whether the alarm was handled by the terminal

(1 if the terminal handled the alarm with a local handler)

2 bytes	Alarm data size (LSB first)
Variable	Alarm data. The content of this field depends on the alarm type. The formats for each defined alarm code are shown below.

(Pad data portion of packet to even 8-byte boundary with zeros)

[END ENCRYPTED AREA]

2 bytes CRC

Alarm Code:	Meaning:	Data:
1	Hard reset (power up)	None
2	Soft reset	None
3	Hardware failure	ASCII diagnostic message (optional)
4	Firmware failure	ASCII diagnostic message (optional)
5	Bill acceptor full	None
6	Coin jam	None
7	Bill jam	None
8	Network disabled	None
12	Game time-out	None
13	Hard drive full	None
18	Printer error	None
19	Printer paper low	None
22	Cable disconnected	ASCII diagnostic message (optional)
23	Security alarm	Binary position of switch positions (use 32 bits)
24	Enabled by technician	Technician ID enabling terminal
25	Disabled by technician	Technician ID disabling terminal
26	Immediate call requested	None
27	Queue entry aged	None
29	Serial number changed	None

Alarm events are queued to the server as soon as they are detected. Alarms of the following types are considered critical and should be transmitted right away:

Hardware failure	Firmware failure
Bill acceptor full	Coin jam
Bill jam	Printer error
Cable disconnected	Security alarm
Immediate call request	

Tournament Play

Tournament play event packets have the following data

structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x01
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
4 bytes	Subscriber ID playing the tournament game (LSB first)
6 bytes	Terminal ID on which the tournament game was played
4 bytes	Service ID on which tournament game was played (LSB first)
1 byte	Player Station (8 bit flags, position 0 = station 1, etc.)
1 byte	Active Station (8 bit flags, position 0 = station 1, etc.)
4 bytes	Start Date and Time (UTC format, LSB first)
4 bytes	End Date and Time (UTC format, LSB first)
1 byte	Flags
	0x01 Equipment failed during game
	0x02 Score is invalid
	0x04 Player should be disqualified
1 byte	Number of statistics (n)
4 bytes	Statistic ID (LSB first)
4 bytes	Statistic Value (LSB first)
...	
1 byte	Number of tournament games entered with the play (m)
4 bytes	Tournament ID entered (LSB first)
1 byte	Bracket ID entered
4 bytes	Derived score achieved by subscriber (LSB first)
...	
(Pad data portion of packet to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

Redemption Play

Redemption play event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x02
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
4 bytes	Subscriber ID playing redemption game (LSB first)

6 bytes		Terminal ID on which redemption game was played
4 bytes		Service ID on which redemption game was played (LSB first)
1 byte		Player Station (8 bit flags, position 0 = station 1, etc.)
1 byte		Active Stations (8 bit flags, position 0 = station 1, etc.)
4 bytes		Start Date and Time (UTC format, LSB first)
4 bytes		End Date and Time (UTC format, LSB first)
1 byte		Flags
	0x01	Equipment failed during game
	0x02	Score is invalid
1 byte		Number of statistics (n)
4 bytes		Statistic ID (LSB first)
4 bytes		Statistic Value (LSB first)
...		
1 byte		Number of redemption games entered with the play (m)
4 bytes		Redemption ID (LSB first)
2 bytes		Par level beaten (LSB first)
4 bytes		Par score beaten
4 bytes		Derived score achieved by subscriber (LSB first)
4 bytes		Pool amount awarded (LSB first)
...		
(Pad data portion of packet to even 8-byte boundary with zeros)		
[END ENCRYPTED AREA]		
2 bytes		CRC

Meter Readings

Meter readings event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x03
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the meters were collected
4 bytes	The date and time meters were collected (in UTC format, LSB first)
2 bytes	Number of terminal meters included (LSB first) (n)
4 bytes	Terminal Meter ID (LSB first)
4 bytes	Terminal Meter Value (LSB first)
...	
2 bytes	Number of service meters (LSB first) (m)
4 bytes	Service ID of the meter (LSB first)

4 bytes Meter ID of the meter (LSB first)

4 bytes Meter Value of the meter (LSB first)

...

(Pad data portion of packet to even 8-byte boundary with zeros)

[END ENCRYPTED AREA]

2 bytes CRC

Terminal manufacturers should support as many of the following pre-defined terminal meter IDs as possible, as well as any additional meters available:

Meter ID:	Meaning:
1	Left slot coins in
2	Right slot coins in
3	3rd slot coins in
4	4th slot coins in
5	Paid credits
6	Total collection (in cents)
7	Service credits
8	Total plays
9	Total uptime (minutes)
10	Number of hard resets
11	Number of soft resets

Terminal meters should never reset to zero. They should accumulate in 32-bit fields over the lifetime of the terminal. Relative values will be computed between two consecutive readings at the database.

Ad Statistics

Ad statistics event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x04
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the statistics were collected
4 bytes	The date and time statistics were collected (in UTC format, LSB first)
2 bytes	Number of unidentified ads (n)
4 bytes	Target ID (LSB first)
4 bytes	Number of plays
...	
2 bytes	Number of identified ad exposures (LSB first) (m)
4 bytes	Target ID (LSB first)

```
    4 bytes     Subscriber ID (LSB first)

    4 bytes     Date and time the ad was played (UTC
                format, LSB first)
...
(Pad data portion of packet to even 8-byte boundary with
zeros)
[END ENCRYPTED AREA]
2 bytes     CRC
```

Ad statistics are accumulated on each terminal and queued at midnight each night (or whenever the terminal detects the current day has changed, in case it is powered off at midnight). The packet reports all ad plays for the day. As soon as this packet is queued, the ad play records can be deleted from the terminal, and a new day's record keeping begun. The queued entry must not be deleted until successfully received at the server and acknowledged.

Service Accesses

Service accesses event packets have the following data structure:

```
Field Size:  Description:
1 byte       Packet Type = 0x82
1 byte       Packet Subtype = 0x05
2 bytes      Packet Size
[BEGIN ENCRYPTED AREA]
6 bytes      Terminal ID on which the statistics were
             collected
4 bytes      The date and time statistics were collected
             (in UTC format, LSB first)
2 bytes      Number of service accesses being reported
             (LSB first) (n)
    4 bytes     Service ID being accessed (LSB first)
    1 byte      Profile used
    4 bytes     Start date and time of access (UTC format,
                LSB first)
    4 bytes     End date and time of access (UTC format,
                LSB first)
    4 bytes     Subscriber ID (LSB first)
    4 bytes     Cash funds used (LSB first)
    4 bytes     Account funds used (LSB first)
...
(Pad data portion of packet to even 8-byte boundary with
zeros)
[END ENCRYPTED AREA]
```

2 bytes CRC

This packet tracks all accesses to any service on the terminal. Each time a player plays a game or engages in a session in any other service, the data should be stored. This packet should be generated each evening at midnight for the day's service accesses (or whenever the terminal detects the current day has changed).

Down Time

Down time event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x06
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the down times are being reported
4 bytes	The date and time down times were reported (in UTC format, LSB first)
2 bytes	Number of down times being reported (LSB first) (n)
4 bytes	Technician ID responsible for the down time (LSB first)
4 bytes	Start date and time of down time (UTC format, LSB first)
4 bytes	End date and time of down time (UTC format, LSB first)
...	
(Pad data portion of packet to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

This packet tracks all down times experienced by a terminal. Games should periodically update some non-volatile timestamp while they are running, and then test this value on powerup to see how long the power outage was, and report this as down time. When a technician administratively takes the game down through a service menu, this is also logged in this packet. This packet should be generated each evening at midnight for the day's down times (or whenever the terminal detects the

current day has changed).

New Subscriber

New subscriber event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x07
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the subscriber registered
4 bytes	Subscriber ID being registered (LSB first)
26 bytes	Alias entered by the subscriber
26 bytes	Street address entered by the subscriber
10 bytes	Postal code entered by the subscriber
10 bytes	Phone number entered by the subscriber
20 bytes	First name entered by subscriber
20 bytes	Last name entered by subscriber
2 bytes	Middle initial entered by subscriber
1 byte	Birth day entered by subscriber
1 byte	Birth month entered by subscriber
2 bytes	Birth year entered by subscriber (LSB first)
1 byte	Gender entered by subscriber (0 = male, 1 = female)
9 bytes	SSN entered by subscriber
2 bytes	PIN entered by the subscriber
1 byte	Number of cards to register
1 byte	Card Type 1 = ADMIN card 2 = Credit card 3 = Debit card 4 = Name 5 = Name and SSN
16 bytes	Card Data
...	
(Pad data portion of packet to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

New subscriber events are queued when players register a new card. They are queued at the time the data is entered, but do not need to be sent right away. However, if the player subsequently plays any games that generate queue entries, the terminal must ensure that this event is transmitted to the server before any game

plays for that player. This is to ensure that the server has established an account for the player before attaching a game play to it.

Any of the registered cards that are included in the packet that already exist on the server or fail for some other reason will be skipped, but the subscriber will be created regardless. A card of type "NANI Card" with a card ID equal to the value of the subscriber ID will be created automatically.

New Team

New team event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x08
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the subscriber registered
4 bytes	Subscriber ID of team being registered (LSB first)
26 bytes	Alias entered by the team
2 bytes	PIN entered for team
1 byte	Number of members
4 bytes	Subscriber ID
1 byte	Flags
...	
(Pad data portion of packet to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

New team events are queued when teams register. They are queued at the time the data is entered, but do not need to be sent right away. However, if the team subsequently plays any games that generate queue entries, the terminal must ensure that this event is transmitted to the server before any game plays for that team. This is to ensure that the server has established an account for the team before attaching a game play to it.

Issued Coupons

Issued coupons event packets have the following data

structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x09
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the down times are being reported
2 bytes	Number of coupons being reported (LSB first) (n)
4 bytes	Coupon ID issued (LSB first)
4 bytes	Subscriber ID coupon was issued to (LSB first)
4 bytes	Date and time coupon was issued (UTC format, LSB first).
6 bytes	Receipt ID
1 byte	Flags
...	
(Pad data portion of packet to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

This packet tracks all coupons issued by a terminal. This packet should be generated each night at midnight for the day's coupons (or whenever the terminal detects the current day has changed).

Loyalty Point Awards

Loyalty point award event packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x82
1 byte	Packet Subtype = 0x0A
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID on which the awards are being reported
2 bytes.	Number of awards being reported (LSB first) (n)
4 bytes	Subscriber ID receiving the award (LSB first)
4 bytes	Loyalty Program ID (LSB first)
2 bytes	Number of points awarded (LSB first)
4 bytes	Date and time the award was made (UTC format, LSB first)
...	
(Pad data portion of packet to even 8-byte boundary with zeros)	

[END ENCRYPTED AREA]
2 bytes CRC

This packet tracks all loyalty points awarded by a terminal. This packet should be generated each evening at midnight for the day's awards (or whenever the terminal detects the current day has changed).

Synchronization Packets

Inventory

Inventory packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x83
1 byte	Packet Subtype = 0x00
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID issuing the request (or 0 for server inventories)
2 bytes	System software version (LSB first)
2 bytes	Number of records (LSB first) (n)
1 byte	Table ID the record belongs to
4 bytes	Record ID
...	
2 bytes	Number of files (LSB first) (m)
4 bytes	File ID (LSB first)
...	
2 bytes	Number of content objects (LSB first) (m)
4 bytes	Content ID (LSB first)
...	
(Pad encrypted area to even multiple of 8 bytes)	
[END ENCRYPTED AREA]	
2 bytes	CRC

Data is guaranteed to be in order of ascending table ID, but not necessarily in order of ascending record ID within each table ID.

Table Download

Downloaded table records are inserted directly into the database, using the record ID as a key. Any existing records with the same record ID are overwritten. A table download packet with 0 records is used to indicate no more data.

Table download packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x83
1 byte	Packet Subtype = 0x01
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
1 byte	Table ID being downloaded
2 bytes	Number of records (LSB first) (n)
6 bytes	Record ID of a record in the table (LSB first)
2 bytes	Record data size (in bytes, LSB first)
Variable	Record data
...	
(Pad encrypted area to even multiple of 8 bytes)	
[END ENCRYPTED AREA]	
2 bytes	CRC

File Initial Download

File Initial Download packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x83
1 byte	Packet Subtype = 0x02
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
4 bytes	File ID being downloaded (LBS first)
4 bytes	Total file size (LSB first)
4 bytes	File flags (compression info, permissions, etc. - TBD)
2 bytes	Number of segments (LSB first)
1 byte	Path length
Variable	pathname on local machine
(Pad encrypted area to even multiple of 8-bytes)	
[END ENCRYPTED AREA]	
2 bytes	CRC

File Next Download

File Next Download packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x83
1 byte	Packet Subtype = 0x03
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
4 bytes	File ID being downloaded (LBS first)
2 bytes	Segment number (LSB first)
2 bytes	Segment data size (LSB first)
Variable	Segment data
(Pad encrypted area to even multiple of 8-bytes)	
[END ENCRYPTED AREA]	
2 bytes	CRC

File Initial Upload

File Initial Upload packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x83
1 byte	Packet Subtype = 0x04
2 bytes	Packet Size
[BEGIN ENCRYPTED AREA]	
4 bytes	File ID being uploaded (LBS first)
4 bytes	Total file size (LSB first)
4 bytes	File flags (compression info, permissions, etc. - TBD)
2 bytes	Number of Segments (LSB first)
1 byte	Filename length
Variable	Filename
(Pad encrypted area to even multiple of 8-bytes)	
[END ENCRYPTED AREA]	
2 bytes	CRC

Retrieve File

A request to transfer a file to a client if the client's version of the file is missing or out of date. Retrieve file request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x1F
2 bytes	Packet Size = 22
[BEGIN ENCRYPTED AREA]	
1 byte	File Type 0 = Content 1 = Service file
4 bytes	File ID
4 bytes	Current file size
4 bytes	Current file modification date
2 bytes	Current file CRC
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

Retrieve File Response

This packet is sent to the client immediately if the requested file is up to date, or does not exist, or after a series of file download packets if the file needs to be downloaded.

Retrieve file request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x20
2 bytes	Packet Size = 22
[BEGIN ENCRYPTED AREA]	
1 byte	Status 0 = File downloaded successfully 1 = Current file is up to date 2 = Error downloading 3 = File not found 4 = System error
4 bytes	File ID
4 bytes	Current file size
4 bytes	Current file modification date
2 bytes	Current file CRC
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

For the synchronization function, assuming that the inventory of a customer is being downloaded, e.g. from a database associated with a regional server to a database associated with an arcade, public PC or validation and redemption terminal, the packets can add a field (e.g. 4 bytes) which identifies the customer.

The administration terminal 43 contains a database which specifies the entire system, in subdatabases which can be specified as classes. The content of the complete database, or the content of each subdatabase can be specified by a single administration entity, or any can be specified by authorized suppliers. In the latter case, the content of the subdatabases can be filled by communication between the terminal 43 and suppliers' terminals, using the system shown in Figure 1.

Subdatabases are preferred to relate to the following:

Suppliers	Locations
Game Machines	Game Software
Redemptions	Tournaments

Merchandise Categories	Pricing
Prizes	Alarms
Schedules	Manufacturers
Customers	Technicians
Advertising	Content
Coupons	Loyalty Programs
Promotions	Services

Profile Descriptor (e.g. VALs)

VAL™ is a standard profile descriptor which has been adopted by some companies. VALs or classification systems used by other companies can be stored and used in addition to or as a replacement for the demographic classification described herein.

Game Software is an example of the above. A field of the above can be the identification of a game which is located on a CD ROM, hard disk drive, DVD or mass semiconductor or other storage means at a game location. Another field can be an algorithm which controls the parameters of the game. Another field can store score brackets which a player must reach in order to win a prize. Another field can store timing information which can be used to modify the brackets. Other fields can be filled with other data required for the game.

The other subdatabases can be similarly filled with data to specify the operation of each parameter of the system. For example, a merchant can specify a premium related to the merchant's store as a prize to the player of a game at an arcade nearby to the store. A field in the prize or coupon subdatabase can point to the game or games for which the premium or coupon is to be distributed, another can specify a score bracket to be achieved (which can be >0) by the player in order to win the premium or coupon, etc.

Once the database has been completed to a required level, the subdatabases are downloaded to the decision

support server 7, which stores it in its database 9. The decision support server then downloads the data as related to the various peripheral terminals to the associated regional servers, which in turn stores required data in their respective databases 5A to 5N, and downloads the data related to the respective terminals to those of concern.

As a further example, regional server 5A downloads initialization parameters to the master games 21 in the arcades in which authorized game machines are located which can communicate with the regional server 5A. It also downloads initialization parameters to the software at the public PCs with which it can communicate, which have been authorized at the administration location.

For example, the initialization parameters may initialize or authorize operation of particular video games, with particular score brackets, at the arcade 17 and at the public PC. The initialization parameters may also initialize a program at the public PC which controls acceptance of payments, and/or acceptance of orders for merchandise, and/or redemption of premiums, etc., and also controls transmission of data to the regional server which updates the account of the customer in currency or other media of exchange such as loyalty points, etc.

Table 1 which is attached at the end of this specification describes preferred subdatabases to be established initially at the administration terminal, which specify games, software, advertisements and other matters, and their parameters, which are downloaded to the terminals in a manner as described above. Each of the subdatabases is headed by a table name, and each of the fields describes the content of the field; its content and use are self evident from the name chosen.

It was noted above that parameters can be downloaded for the operation of a game. The shell of a

game can have a requirement for score formulae to be inserted. The score formulae can be determined at the administration terminal, and downloaded as noted earlier, as one or more parameters of the game.

For example, consider the Pacman™ game. Key graphical elements of the game are dots, fruits, ghosts, and the game requires a scope value. The dots can be given a statistic S00, the fruits a statistic S01, the ghosts a statistic S02 and the scope a statistic S03.

A formula can be determined, e.g. (S00 + 5) * S03 to determine an output score for dots, for example. The scores can be used to alter the game, or to alter tournament derived scores. The formulae can be modified by a player rating depending on the player identified (e.g. a handicap or demographic indicator), a game handicap, or a predetermined algorithm.

In operation, as customer may attend a validation or redemption terminal location at the location of a merchant, or at an arcade, or at the location a public PC, and wish to enter credits, or wish to be registered in the system. Entering of credits can be effected by an attendant keying in relevant information to a terminal, sufficient to identify the person, e.g. name and address, etc., or the customer can perform the same function via an automatic terminal such as a card vending machine which provides instructions how to proceed. If there are no credits to be entered, the customer should choose a PIN number, which is recorded in a hidden manner (such as in a magnetic stripe or in the memory of a "smart card" carried on the card), and the card is dispensed or personally given to the customer. If a currency credit is to be posted, the customer will pay the attendant or deposit money into the card vending machine, which is recorded against the identity of the customer. The data entered into the terminal is then uploaded to the

regional server e.g. 1A, and is stored in its associated database 5A.

The customer now will undertake certain activities, such as purchasing goods or services from any of the merchants registered in the system, or play games at the arcade. If the customer plays games at the arcade, and wishes to use the credit balance in his account to play, he will swipe his card in a card reader at the game, which identifies him and the value to be debited from his balance. If he wishes to purchase goods or services against his credit, or purchase a different service offered at the public PC (e.g. purchase printing or communication services) his card will be swiped in a card reader at the location of the merchant where he wishes to purchase the goods or services or at the public PC.

In any such case, the identity of the customer, the location of the customer, the identity of the merchant, game or public PC, and the amount of the debit will be uploaded into and stored in the database 5A after being recorded at the location (e.g. in database 23 if the transaction occurred at the arcade).

The administrator had already entered into its database using terminal 43 loyalty point values for certain activities, which had been downloaded and stored at database 9, and then loaded to databases 5A..5N. Therefore for each activity undertaken by the customer for which loyalty points are to be awarded, they are credited to the customer's account stored in the customer's database of the regional server. These loyalty points can then be used as a form of scrip by the customer, apart from, or with cash deposits.

In addition, the administrator can specify and store records in the aforenoted databases that premium coupons should be dispensed for the customer at the

determined location of the customer via a local printer, for defined activities undertaken by the customer.

Loyalty points, game credits for future play and/or coupons can also be awarded to the account of the customer and/or dispensed when predetermined scores or score brackets are achieved on the games (whether due to individual play or in tournaments) by the identified customer player.

The amounts of the loyalty points, game credits or coupons can be varied by time, by location, by number of players having played the game or tournament within a certain time interval or within certain clock times, by number of players, by demographic of the player, by difficulty of the game, by game handicap, etc. All such variations can be established at the administration location by means of a matrix (or form) to be filled in, such as shown in Table I attached hereto and forming part of this specification, and stored in the databases as described above. Indeed, the administrator can indicate a conversion of loyalty points to currency, for redemption or for use to purchase goods of particular ones or of any goods or services provided by member merchants.

When a customer wishes to redeem a coupon, the customer presents it to a merchant, public pc operator, public pc, etc., its bar code is read by a bar code reader at a validation and redemption terminal, and the customer's identification is read from his card by a card reader, at the validation and redemption terminal. The identification (and value, if desired for greater security) of the coupon is uploaded to the regional server, and the database is accessed using the identification of the customer. The identity of the coupon is then checked in the customer's record, and if the coupon had been validly recorded, a message is sent

to the validation and redemption terminal acknowledging the validity of the transaction. An acknowledgement is entered into the terminal and is uploaded to the regional server, which either marks the coupon record as having been used, or deletes it from the customer's record. In either case, information of the awarding, and subsequently of the redemption of the coupon, is entered to database 9 via the decision support server, to provide a statistical report to terminal 43 either immediately or from time to time as to volumes and identities of services used by the customer or by groups of customers, by demographics, etc. and coupons and loyalty points awarded and redeemed, and the identity of the merchant or terminal performing the redemption.

These statistics provide a good measure for the administrator to be able to use for reporting and/or advertising of the benefits of the system to prospective merchants and others which may wish to advertise on the system or which may wish to include their goods, services and locations as part of the system. In addition, it provides the information to the administrator for settling the merchants' accounts, as described earlier. The loyalty points thus have been used as a medium of exchange separate from currency.

It should be noted that while the description herein is to a client-server type system which communicate in a particular manner, the equivalent function and structure of the invention could also be realized by persons skilled in the art understanding this invention via one or more browsers which interface one or more web pages, either via the internet or on one or more intranets which are either self-contained or which communicate via the internet, or via private network.

A person understanding this invention may now conceive of alternate embodiments and enhancements using

the principles described herein. All such embodiments and enhancements are considered to be within the spirit and scope of this invention as defined in the claims appended hereto.

TABLE 1

```
# initdb.ini
#
# NOTES:
# 1.  Database name cannot exceed 23 characters
# 2.  Allowed data type are LONG, SHORT, BIN, VARBIN
# 3.  Table names cannot exceed 23 characters
# 4.  Field names cannot exceed 23 characters
# 5.  Arrays of SHORT and LONG are not supported (set
      size = 1)
# 6.  Variable binary fields as primary keys is not
      supported
# 7.  Each table can have only one variable binary
      field
# 8.  Variable binary field must be last field in
      table
# 9.  Variable binary field must be preceded by SHORT
      size field
# 10. File created will be database name with ".db"
      appended
# 11. Tables cannot exceed 32 fields

DATABASE = nani

TABLE    = AD
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = AD_ID                    : LONG    : 1
   FIELD = CONTENT_ID               : LONG    : 1
   FIELD = PRECEDING_AD_ID          : LONG    : 1
   FIELD = NEXT_AD_ID               : LONG    : 1
   FIELD = MAX_VIEWS_PER_PERSON     : SHORT   : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = AD_SCHEDULE
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = AD_ID                    : LONG    : 1
   FIELD = TERMINAL_ID              : BIN     : 6
   FIELD = SCHEDULE_ID              : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = AD_TARGET
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = TARGET_ID                : LONG    : 1
   FIELD = AD_ID                    : LONG    : 1
   FIELD = TARGET_TYPE              : BIN     : 1
   FIELD = TARGET_EVENT_ID          : LONG    : 1
   FIELD = TARGET_SERVICE_ID        : LONG    : 1
   FIELD = SLOT                     : BIN     : 1
   FIELD = PRIORITY                 : BIN     : 1
   FIELD = MIN_DAILY_EXPOSURES      : SHORT   : 1
```

```
   FIELD = MAX_DAILY_EXPOSURES      : SHORT    : 1
   FIELD = MIN_TOTAL_EXPOSURES      : LONG     : 1
   FIELD = MAX_TOTAL_EXPOSURES      : LONG     : 1
   FIELD = FLAGS                    : BIN      : 1

TABLE    = AD_TARGET_DEMOGRAPHIC
   FIELD = RECORD_ID                : BIN      : 6 : PK
   FIELD = TARGET_ID                : LONG     : 1
   FIELD = DEMOGRAPHIC              : LONG     : 1
   FIELD = FLAGS                    : BIN      : 1

TABLE    = AD_TARGET_PROMOTION
   FIELD = RECORD_ID                : BIN      : 6 :PK
   FIELD = TARGET_ID                : LONG     : 1
   FIELD = PROMOTION_ID             : LONG     : 1
   FIELD = FLAGS                    : BIN      : 1

TABLE    = AD_URC
   FIELD = RECORD_ID                : BIN      : 6 : PK
   FIELD = AD_ID                    : LONG     : 1
   FIELD = URC                      : LONG     : 1
   FIELD = FLAGS                    : BIN      : 1

TABLE    = ALARM_HANDLER
   FIELD = RECORD_ID                : BIN      : 6 : PK
   FIELD = HANDLER_ID               : LONG     : 1
   FIELD = ALARM_CODE               : BIN      : 1
   FIELD = PRIORITY                 : BIN      : 1
   FIELD = PROCESS_TYPE             : BIN      : 1
   FIELD = FLAGS                    : BIN      : 1
   FIELD = PROCESS_DATA_SIZE        : SHORT    : 1
   FIELD = PROCESS_DATA             : VARBIN   : 1

TABLE    = BRACKET
   FIELD = RECORD_ID                : BIN      : 6 : PK
   FIELD = TOURNAMENT_ID            : LONG     : 1
   FIELD = BRACKET_ID               : BIN      : 1
   FIELD = SHORT_NAME               : BIN      : 28
   FIELD = NAME                     : BIN      : 72
   FIELD = START_DATE_TIME          : LONG     : 1
   FIELD = END_DATE_TIME            : LONG     : 1
   FIELD = SCORE_POSTING_TIME       : LONG     : 1
   FIELD = ENTRY_PRICE              : LONG     : 1
   FIELD = PREPAID_PLAYS            : SHORT    : 1
   FIELD = MIN_GAMES_PER_PLAYER     : SHORT    : 1
   FIELD = MAX_GAMES_PER_PLAYER     : SHORT    : 1
   FIELD = MIN_GAMES_PER_TEAM       : SHORT    : 1
   FIELD = MAX_GAMES_PER_TEAM       : SHORT    : 1
   FIELD = LEADERBOARD_ID           : LONG     : 1
   FIELD = SPONSER                  : BIN      : 40
   FIELD = ICON                     : LONG     : 1
   FIELD = SPLASH_SCREEN            : LONG     : 1
```

```
   FIELD = FLAGS                    : BIN     : 1
   FIELD = RANKING_ALGORITHM        : BIN     : 1

TABLE    = BRACKET_ADVANCE
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID            : LONG    : 1
   FIELD = BRACKET_ID               : BIN     : 1
   FIELD = ADVANCE_TYPE             : BIN     : 1
   FIELD = FROM_TOURNAMENT_ID       : LONG    : 1
   FIELD = FROM_BRACKET_ID          : BIN     : 1
   FIELD = FROM_LOW                 : LONG    : 1
   FIELD = TO_HIGH                  : LONG    : 1
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = PROFILE                  : BIN     : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = BRACKET_MEMBERSHIP
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID            : LONG    : 1
   FIELD = BRACKET_ID               : BIN     : 1
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = BRACKET_PRIZE
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID            : LONG    : 1
   FIELD = BRACKET_ID               : BIN     : 1
   FIELD = PRIZE_ITEM_ID            : LONG    : 1
   FIELD = PRIZE_PERCENT_OF_POOL    : BIN     : 1
   FIELD = WINNING_PLACE            : BIN     : 1
   FIELD = PLACE_NAME               : BIN     : 20
   FIELD = NUM_WINNERS              : LONG    : 1
   FIELD = EXPIRATION_DATE          : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = BRACKET_PROMOTION
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID            : LONG    : 1
   FIELD = BRACKET_ID               : BIN     : 1
   FIELD = PROMOTION_ID             : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1
   FIELD = MIN_RANK                 : SHORT   : 1

TABLE    = BRACKET_RULE_SCREEN
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID            : LONG    : 1
   FIELD = BRACKET_ID               : BIN     : 1
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = SCREEN_INDEX             : BIN     : 1
   FIELD = CONTENT_ID               : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1
```

```
TABLE    = BRACKET_SCHEDULE
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID             : LONG    : 1
   FIELD = BRACKET_ID                : BIN     : 1
   FIELD = TERMINAL_ID               : BIN     : 6
   FIELD = SCHEDULE_ID               : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1
   FIELD = NUM_LOCAL_LEADERS         : SHORT   : 1

TABLE    = BRACKET_SERVICE
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID             : LONG    : 1
   FIELD = BRACKET_ID                : BIN     : 1
   FIELD = SERVICE_ID                : LONG    : 1
   FIELD = PROFILE                   : BIN     : 1
   FIELD = PRICING_ID                : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1
   FIELD = MIN_RATING_ALLOWED        : BIN     : 1
   FIELD = MAX_RATING_ALLOWED        : BIN     : 1

TABLE    = CATALOG_CATEGORY
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = CATEGORY_ID               : LONG    : 1
   FIELD = CATEGORY_NAME             : BIN     : 40
   FIELD = PARENT_CATEGORY_ID        : LONG    : 1
   FIELD = ICON                      : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = CATALOG_CATEGORY_URC
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = CATEGORY_ID               : LONG    : 1
   FIELD = URC                       : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = CONTENT
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = CONTENT_ID                : LONG    : 1
   FIELD = FORMAT                    : BIN     : 1
   FIELD = DURATION_MS               : LONG    : 1
   FIELD = PATHNAME                  : BIN     : 60
   FIELD = FILE_SIZE                 : LONG    : 1
   FIELD = CRC                       : SHORT   : 1
   FIELD = FILE_TIMESTAMP            : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1
TABLE    = COUPON
   FIELD = RECORD_ID                 : BIN     : 6
   FIELD = COUPON_ID                 : LONG    : 1
   FIELD = DESCRIPTION               : BIN     : 40
   FIELD = CONTENT_ID                : LONG    : 1
   FIELD = UPC_SYMBOL                : BIN     : 12
   FIELD = FACE_VALUE                : LONG    : 1
   FIELD = MAX_ISSUED_PER_PLAYER     : SHORT   : 1
```

```
    FIELD = FLAGS                    : BIN     : 1

TABLE    = COUPON_ITEM_SCHEDULE
    FIELD = RECORD_ID                : BIN     : 6 : PK
    FIELD = COUPON_ID                : LONG    : 1
    FIELD = ITEM_ID                  : LONG    : 1
    FIELD = TERMINAL_ID              : BIN     : 6
    FIELD = SCHEDULE_ID              : LONG    : 1
    FIELD = COUPON_CASH_VALUE        : LONG    : 1
    FIELD = COUPON_PRICE             : LONG    : 1
    FIELD = NUM_ITEMS_PER_COUPON     : SHORT   : 1
    FIELD = MAX_REDEEMED             : SHORT   : 1
    FIELD = FLAGS                    : BIN     : 1

TABLE    = COUPON_SERVICE_SCHEDULE
    FIELD = RECORD_ID                : BIN     : 6 : PK
    FIELD = COUPON_ID                : LONG    : 1
    FIELD = SERVICE_ID               : LONG    : 1
    FIELD = TERMINAL_ID              : BIN     : 6
    FIELD = SCHEDULE_ID              : LONG    : 1
    FIELD = COUPON_CASH_VALUE        : LONG    : 1
    FIELD = COUPON_PRICE             : LONG    : 1
    FIELD = NUM_PLAYS_PER_COUPON     : SHORT   : 1
    FIELD = MAX_REDEEMED             : SHORT   : 1
    FIELD = FLAGS                    : BIN     : 1

TABLE    = FILE_INFO
    FIELD = RECORD_ID                : BIN     : 6 : PK
    FIELD = FILE_ID                  : LONG    : 1
    FIELD = FILESET_ID               : LONG    : 1
    FIELD = PATHNAME                 : BIN     : 60
    FIELD = FILE_SIZE                : LONG    : 1
    FIELD = CRC                      : SHORT   : 1
    FIELD = FILE_TIMESTAMP           : LONG    : 1
    FIELD = FLAGS                    : BIN     : 1

TABLE    = ITEM
    FIELD = RECORD_ID                : BIN     : 6 : PK
    FIELD = ITEM_ID                  : LONG    : 1
    FIELD = CATEGORY_ID              : LONG    : 1
    FIELD = ITEM_NAME                : BIN     : 40
    FIELD = MIN_PRICE                : LONG    : 1
    FIELD = MAX_PRICE                : LONG    : 1
    FIELD = ICON                     : LONG    : 1
    FIELD = FLAGS                    : BIN     : 1
    FIELD = ITEM_COST                : LONG    : 1
    FIELD = RETAIL_PRICE             : LONG    : 1
    FIELD = QUANTITY_ON_HAND         : LONG    : 1
    FIELD = MIN_QUANTITY_ON_HAND     : LONG    : 1
    FIELD = DISTRIBUTION_LOCATION    : BIN     : 40
```

```
TABLE    = ITEM_ATTRIBUTE
   FIELD = RECORD_ID                 : BIN     : 6  : PK
   FIELD = ITEM_ID                   : LONG    : 1
   FIELD = ATTRIBUTE_ID              : BIN     : 1
   FIELD = ATTRIBUTE_NAME            : BIN     : 40
   FIELD = DATA_TYPE                 : BIN     : 1
   FIELD = MINIMUM                   : LONG    : 1
   FIELD = MAXIMUM                   : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = ITEM_ATTRIBUTE_VALUE
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = ITEM_ID                   : LONG    : 1
   FIELD = ATTRIBUTE_ID              : BIN     : 1
   FIELD = VALUE_INDEX               : BIN     : 1
   FIELD = VALUE_TEXT                : BIN     : 30
   FIELD = FLAGS                     : BIN     : 1

TABLE    = ITEM_PROMOTION
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = ITEM_ID                   : LONG    : 1
   FIELD = PROMOTION_ID              : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = ITEM_SCHEDULE
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = ITEM_ID                   : LONG    : 1
   FIELD = TERMINAL_ID               : BIN     : 6
   FIELD = SCHEDULE_ID               : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = ITEM_SCREEN
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = ITEM_ID                   : LONG    : 1
   FIELD = SCREEN_INDEX              : BIN     : 1
   FIELD = CONTENT_ID                : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = ITEM_URC
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = ITEM_ID                   : LONG    : 1
   FIELD = URC                       : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = LEADERBOARD
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = LEADERBOARD_ID            : LONG    : 1
   FIELD = LEADERBOARD_DATE_TIME     : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1
   FIELD = MAX_LEADERS               : SHORT   : 1
```

```
TABLE    = LEADERBOARD_LEADER
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = LEADERBOARD_ID            : LONG    : 1
   FIELD = SUBSCRIBER_ID             : LONG    : 1
   FIELD = ALIAS                     : BIN     : 26
   FIELD = LOCATION_NAME             : BIN     : 26
   FIELD = LOCATION_CITY_STATE       : BIN     : 26
   FIELD = PRIZE_NAME                : BIN     : 26
   FIELD = SCORE                     : LONG    : 1
   FIELD = SCORE_DATE_TIME           : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = LEADERBOARD_RANKING
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = LEADERBOARD_ID            : LONG    : 1
   FIELD = RANK                      : SHORT   : 1
   FIELD = SUBSCRIBER_ID             : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = LOCATION
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = LOCATION_ID               : LONG    : 1
   FIELD = SHORT_NAME                : BIN     : 26
   FIELD = NAME                      : BIN     : 72
   FIELD = SHORT_CITY_STATE          : BIN     : 26
   FIELD = CITY_STATE                : BIN     : 72
   FIELD = TIME_ZONE                 : BIN     : 1
   FIELD = MAX_DAILY_PAYOUT          : LONG    : 1
   FIELD = DIALIN_INTERVAL           : LONG    : 1
   FIELD = LANGUAGE_CODE             : SHORT   : 1
   FIELD = COUNTRY_CODE              : SHORT   : 1
   FIELD = FLAGS                     : BIN     : 1
   FIELD = TOKEN_PRICE               : LONG    : 1

TABLE    = LOCATION_ATTRACT_SCREEN
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = LOCATION_ID               : LONG    : 1
   FIELD = SCREEN_INDEX              : BIN     : 1
   FIELD = CONTENT_ID                : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = LOCATION_COUPON_SCHED
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = LOCATION_ID               : LONG    : 1
   FIELD = COUPON_ID                 : LONG    : 1
   FIELD = SCHEDULE_ID               : LONG    : 1
   FIELD = COUPON_PRICE              : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = LOCATION_LOYALTY_SCHED
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = LOCATION_ID               : LONG    : 1
```

```
   FIELD = LOYALTY_PROGRAM_ID       : LONG    : 1
   FIELD = SCHEDULE_ID              : LONG    : 1
   FIELD = POINT_PRICE              : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = LOCATION_URC
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = LOCATION_ID              : LONG    : 1
   FIELD = URC                      : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = LOYALTY_PROGRAM
   FIELD = RECORD_ID                : BIN     : 6
   FIELD = LOYALTY_PROGRAM_ID       : LONG    : 1
   FIELD = NAME                     : BIN     : 40
   FIELD = POINT_LABEL              : BIN     : 20
   FIELD = FLAGS                    : BIN     : 1

TABLE    = LOYALTY_ITEM_SCHED
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = LOYALTY_PROGRAM_ID       : LONG    : 1
   FIELD = ITEM_ID                  : LONG    : 1
   FIELD = TERMINAL_ID              : BIN     : 6
   FIELD = SCHEDULE_ID              : LONG    : 1
   FIELD = POINT_CASH_VALUE         : LONG    : 1
   FIELD = POINT_PRICE              : LONG    : 1
   FIELD = POINT_PER_ITEM           : SHORT   : 1
   FIELD = ITEMS_PER_POINT          : SHORT   : 1
   FIELD = MAX_USED_PER_ITEM        : SHORT   : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = LOYALTY_SERVICE_SCHED
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = LOYALTY_PROGRAM_ID       : LONG    : 1
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = TERMINAL_ID              : BIN     : 6
   FIELD = SCHEDULE_ID              : LONG    : 1
   FIELD = POINT_CASH_VALUE         : LONG    : 1
   FIELD = POINT_PRICE              : LONG    : 1
   FIELD = POINTS_PER_PLAY          : SHORT   : 1
   FIELD = PLAYS_PER_POINT          : SHORT   : 1
   FIELD = MAX_USED_PER_PLAY        : SHORT   : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = PRICING
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = PRICING_ID               : LONG    : 1
   FIELD = PRICE_TO_START           : LONG    : 1
   FIELD = PRICE_TO_CONTINUE        : LONG    : 1
   FIELD = START_DURATION           : LONG    : 1
   FIELD = CONTINUE_DURATION        : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1
```

```
TABLE    = PROMOTION
   FIELD = RECORD_ID                  : BIN     : 6 : PK
   FIELD = PROMOTION_ID               : LONG    : 1
   FIELD = FLAGS                      : BIN     : 1

TABLE    = PROMOTION_COUPON
   FIELD = RECORD_ID                  : BIN     : 6 : PK
   FIELD = PROMOTION_ID               : LONG    : 1
   FIELD = COUPON_ID_TO_AWARD         : LONG    : 1
   FIELD = FLAGS                      : BIN     : 1

TABLE    = PROMOTION_LOYALTY
   FIELD = RECORD_ID                  : BIN     : 6 : PK
   FIELD = PROMOTION_ID               : LONG    : 1
   FIELD = LOYALTY_PROGRAM_ID         : LONG    : 1
   FIELD = NUM_POINTS_TO_AWARD        : SHORT   : 1
   FIELD = FLAGS                      : BIN     : 1

TABLE    = REDEMPTION
   FIELD = RECORD_ID                  : BIN     : 6 : PK
   FIELD = REDEMPTION_ID              : LONG    : 1
   FIELD = FLAGS                      : BIN     : 1
   FIELD = MIN_RATING_ALLOWED         : BIN     : 1
   FIELD = MAX_RATING_ALLOWED         : BIN     : 1
   FIELD = SERVICE_ID                 : LONG    : 1
   FIELD = PROFILE                    : BIN     : 1
   FIELD = SHORT_NAME                 : BIN     : 28
   FIELD = NAME                       : BIN     : 72
   FIELD = PRICING_ID                 : LONG    : 1
   FIELD = START_DATE_TIME            : LONG    : 1
   FIELD = END_DATE_TIME              : LONG    : 1
   FIELD = SPONSER                    : BIN     : 40
   FIELD = ICON                       : LONG    : 1
   FIELD = SPLASH_SCREEN              : LONG    : 1
   FIELD = PERCENT_MONEY_TO_POOL      : BIN     : 1
   FIELD = CURRENT_POOL_VALUE         : LONG    : 1
   FIELD = VALUE_OF_AVAIL_PRIZES      : LONG    : 1
   FIELD = PLAYS_TO_DATE              : LONG    : 1
   FIELD = LAST_UPDATE_DATE_TIME      : LONG    : 1

TABLE    = REDEMPTION_PAR_LEVEL
   FIELD = RECORD_ID                  : BIN     : 6 : PK
   FIELD = REDEMPTION_ID              : LONG    : 1
   FIELD = PAR_LEVEL                  : BIN     : 1
   FIELD = PAR_SCORE                  : LONG    : 1
   FIELD = TARGET_PAY_PERCENT         : BIN     : 1
   FIELD = PRIZE_ITEM_ID              : LONG    : 1
   FIELD = PERCENT_OF_POOL_APPLIED    : BIN     : 1
   FIELD = EXPIRATION_DATE            : LONG    : 1
   FIELD = NUM_REMAINING              : LONG    : 1
   FIELD = MIN_WIN_INTERVAL           : LONG    : 1
   FIELD = FLAGS                      : BIN     : 1
```

```
    FIELD = MIN_PRIOR_PLAYS          : LONG    : 1

TABLE    = REDEMPTION_PROMOTION
  FIELD  = RECORD_ID                 : BIN     : 6 : PK
  FIELD  = REDEMPTION_ID             : LONG    : 1
  FIELD  = PROMOTION_ID              : LONG    : 1
  FIELD  = FLAGS                     : BIN     : 1
  FIELD  = PAR_LEVEL                 : BIN     : 1

TABLE    = REDEMPTION_RULE_SCREEN
  FIELD  = RECORD_ID                 : BIN     : 6 : PK
  FIELD  = REDEMPTION_ID             : LONG    : 1
  FIELD  = SCREEN_INDEX              : BIN     : 1
  FIELD  = CONTENT_ID                : LONG    : 1
  FIELD  = FLAGS                     : BIN     : 1

TABLE    = REDEMPTION_SCHEDULE
  FIELD  = RECORD_ID                 : BIN     : 6 : PK
  FIELD  = REDEMPTION_ID             : LONG    : 1
  FIELD  = TERMINAL_ID               : BIN     : 6
  FIELD  = SCHEDULE_ID               : LONG    : 1
  FIELD  = FLAGS                     : BIN     : 1

TABLE    = REDEMPTION_URC
  FIELD  = RECORD_ID                 : BIN     : 6 : PK
  FIELD  = REDEMPTION_ID             : LONG    : 1
  FIELD  = URC                       : LONG    : 1
  FIELD  = FLAGS                     : BIN     : 1

TABLE    = SCHEDULE
  FIELD  = RECORD_ID                 : BIN     : 6 : PK
  FIELD  = SCHEDULE_ID               : LONG    : 1
  FIELD  = START_DATE_TIME           : LONG    : 1
  FIELD  = END_DATE_TIME             : LONG    : 1
  FIELD  = WEEKDAYS                  : BIN     : 1
  FIELD  = START_TIME_OF_DAY         : LONG    : 1
  FIELD  = END_TIME_OF_DAY           : LONG    : 1
  FIELD  = FLAGS                     : BIN     : 1

TABLE    = SERVICE
  FIELD  = RECORD_ID                 : BIN     : 6 : PK
  FIELD  = SERVICE_ID                : LONG    : 1
  FIELD  = SERVICE_TYPE              : BIN     : 1
  FIELD  = FLAGS                     : BIN     : 1
  FIELD  = SHORT_NAME                : BIN     : 30
  FIELD  = NAME                      : BIN     : 72
  FIELD  = ICON                      : LONG    : 1
  FIELD  = ATTRACT_SCREEN            : LONG    : 1
  FIELD  = SW_CAPABILITIES           : BIN     : 10
  FIELD  = HW_REQUIREMENTS           : BIN     : 10
  FIELD  = FILESET_ID                : LONG    : 1
  FIELD  = EXECUTABLE_FILE_ID        : LONG    : 1
```

```
TABLE    = SERVICE_PROFILE
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = PROFILE                  : BIN     : 1
   FIELD = PROFILE_NAME             : BIN     : 40
   FIELD = FLAGS                    : BIN     : 1
   FIELD = SCORE_FORMULA_LENGTH     : SHORT   : 1
   FIELD = SCORE_FORMULA            : VARBIN  : 1

TABLE    = SERVICE_PROFILE_SETTING
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = PROFILE                  : BIN     : 1
   FIELD = SETTING_ID               : LONG    : 1
   FIELD = SETTING_VALUE            : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SERVICE_PROMOTION
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = PROMOTION_ID             : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SERVICE_RATING
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = RATING                   : BIN     : 1
   FIELD = DESCRIPTION              : BIN     : 26
   FIELD = FLAGS                    : BIN     : 1


TABLE    = SERVICE_SCHEDULE
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = TERMINAL_ID              : BIN     : 6
   FIELD = SCHEDULE_ID              : LONG    : 1
   FIELD = PROFILE                  : BIN     : 1
   FIELD = PRICING_ID               : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SERVICE_SETTING
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = SETTING_ID               : LONG    : 1
   FIELD = SETTING_NAME             : BIN     : 32
   FIELD = TYPE                     : BIN     : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SERVICE_SLOT
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = SLOT                     : BIN     : 1
```

```
   FIELD = SCHEDULE_ID              : LONG    : 1
   FIELD = NUM_AD_PLAYS             : BIN     : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SERVICE_STATISTIC
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = STATISTIC_ID             : LONG    : 1
   FIELD = STATISTIC_NAME           : BIN     : 20
   FIELD = LOWER_LIMIT              : LONG    : 1
   FIELD = UPPER_LIMIT              : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SERVICE_TERMINAL
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = TERMINAL_ID              : BIN     : 6
   FIELD = LICENSE_KEY              : BIN     : 16
   FIELD = FILESET_ID               : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SERVICE_TYPE
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = TYPE                     : BIN     : 1
   FIELD = PARENT_TYPE              : BIN     : 1
   FIELD = TYPE_NAME                : BIN     : 16
   FIELD = FLAGS                    : BIN     : 1


TABLE    = SERVICE_URC
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = URC                      : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SUBSCRIBER
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = ALIAS                    : BIN     : 26
   FIELD = FIRST_NAME               : BIN     : 20
   FIELD = LAST_NAME                : BIN     : 20
   FIELD = MIDDLE_INITIAL           : BIN     : 2
   FIELD = STREET_ADDRESS           : BIN     : 40
   FIELD = POSTAL_CODE              : BIN     : 10
   FIELD = PHONE_NUMBER             : BIN     : 10
   FIELD = BIRTH_DAY                : BIN     : 1
   FIELD = BIRTH_MONTH              : BIN     : 1
   FIELD = BIRTH_YEAR               : SHORT   : 1
   FIELD = GENDER                   : BIN     : 1
   FIELD = FLAGS                    : BIN     : 1
   FIELD = DEMOGRAPHIC              : LONG    : 1
   FIELD = LAST_UPDATE_DATE_TIME    : LONG    : 1
```

```
TABLE    = SUBSCRIBER_AD
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = AD_ID                    : LONG    : 1
   FIELD = VIEW_DATE_TIME           : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SUBSCRIBER_AVATAR
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = AVATAR_TYPE              : BIN     : 1
   FIELD = CONTENT_ID               : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SUBSCRIBER_BRACKET
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = TOURNAMENT_ID            : LONG    : 1
   FIELD = BRACKET_ID               : BIN     : 1
   FIELD = GAMES_PLAYED             : SHORT   : 1
   FIELD = FLAGS                    : BIN     : 1
   FIELD = RANK                     : LONG    : 1
   FIELD = RANK_DATE_TIME           : LONG    : 1
   FIELD = RANK_SCORE               : LONG    : 1
   FIELD = AVERAGE_SCORE            : LONG    : 1

TABLE    = SUBSCRIBER_CARD
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = CARD_TYPE                : BIN     : 1
   FIELD = CARD_DATA                : BIN     : 16
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SUBSCRIBER_RATING
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = PROFILE                  : BIN     : 1
   FIELD = RATING                   : BIN     : 1
   FIELD = HANDICAP                 : LONG    : 1
   FIELD = PLAYS_TO_QUALIFY         : BIN     : 1
   FIELD = FLAGS                    : BIN     : 1

TABLE    = SUBSCRIBER_SAVE_STATE
   FIELD = RECORD_ID                : BIN     : 6 : PK
   FIELD = SUBSCRIBER_ID            : LONG    : 1
   FIELD = SERVICE_ID               : LONG    : 1
   FIELD = SLOT_NUMBER              : BIN     : 1
   FIELD = PROFILE                  : BIN     : 1
   FIELD = SAVE_STATE_NAME          : BIN     : 20
   FIELD = DATA_FILE_ID             : LONG    : 1
   FIELD = FLAGS                    : BIN     : 1
```

```
TABLE    = SUBSCRIBER_URC
  FIELD  = RECORD_ID                : BIN     : 6 : PK
  FIELD  = SUBSCRIBER_ID            : LONG    : 1
  FIELD  = URC                      : LONG    : 1
  FIELD  = FLAGS                    : BIN     : 1

TABLE    = TEAM_MEMBER
  FIELD  = RECORD_ID                : BIN     : 6 : PK
  FIELD  = TEAM_SUBSCRIBER_ID       : LONG    : 1
  FIELD  = SUBSCRIBER_ID            : LONG    : 1
  FIELD  = FLAGS                    : BIN     : 1

TABLE    = TECHNICIAN
  FIELD  = RECORD_ID                : BIN     : 6 : PK
  FIELD  = TECHNICIAN_ID            : LONG    : 1
  FIELD  = NAME                     : BIN     : 26
  FIELD  = PIN                      : SHORT   : 1
  FIELD  = FLAGS                    : BIN     : 1

TABLE    = TECHNICIAN_TERMINAL
  FIELD  = RECORD_ID                : BIN     : 6 : PK
  FIELD  = TECHNICIAN_ID            : LONG    : 1
  FIELD  = TERMINAL_ID              : BIN     : 6
  FIELD  = AUTHORIZATION_FLAGS      : BIN     : 1

TABLE    = TERMINAL
  FIELD  = RECORD_ID                : BIN     : 6 : PK
  FIELD  = TERMINAL_ID              : BIN     : 6
  FIELD  = LOCATION_ID              : LONG    : 1
  FIELD  = LAN_ADDRESS              : BIN     : 4
  FIELD  = FLAGS                    : BIN     : 1
  FIELD  = SERIAL_NUMBER            : BIN     : 20
  FIELD  = HW_CAPABILITIES          : BIN     : 10
  FIELD  = ATTRACT_SCREEN           : LONG    : 1
  FIELD  = SYSTEM_FILESET_ID        : LONG    : 1

TABLE    = TOURNAMENT
  FIELD  = RECORD_ID                : BIN     : 6 : PK
  FIELD  = TOURNAMENT_ID            : LONG    : 1
  FIELD  = SHORT_NAME               : BIN     : 28
  FIELD  = NAME                     : BIN     : 72
  FIELD  = START_DATE_TIME          : LONG    : 1
  FIELD  = END_DATE_TIME            : LONG    : 1
  FIELD  = TOURNAMENT_SCOPE         : BIN     : 1
  FIELD  = FLAGS                    : BIN     : 1
  FIELD  = SPONSER                  : BIN     : 40
  FIELD  = ICON                     : LONG    : 1
  FIELD  = SPLASH_SCREEN            : LONG    : 1
  FIELD  = PERCENT_MONEY_TO_POOL    : BIN     : 1
  FIELD  = CURRENT_POOL_VALUE       : LONG    : 1
  FIELD  = PLAYS_TO_DATE            : LONG    : 1
  FIELD  = LAST_UPDATE_DATE_TIME    : LONG    : 1
```

```
TABLE    = TOURNAMENT_URC
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = TOURNAMENT_ID             : LONG    : 1
   FIELD = URC                       : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = URC_VALUE
   FIELD = RECORD_ID                 : BIN     : 6 : PK
   FIELD = URC                       : LONG    : 1
   FIELD = RESTRICTED_STRING         : BIN     : 30
   FIELD = FLAGS                     : BIN     : 1

# Working tables - not replicated from EDS server

TABLE    = W_AD_EXPOSURE
   FIELD = RECORD_ID                 : LONG    : 1 : PK
   FIELD = TARGET_ID                 : LONG    : 1
   FIELD = SUBSCRIBER_ID             : LONG    : 1
   FIELD = PLAY_DATE_TIME            : LONG    : 1

TABLE    = W_AD_EXPOSURE_COUNTS
   FIELD = RECORD_ID                 : LONG    : 1 : PK
   FIELD = TARGET_ID                 : LONG    : 1
   FIELD = TOTAL_PLAYS_TODAY         : SHORT   : 1
   FIELD = TOTAL_PLAYS_TO_DATE       : LONG    : 1

TABLE    = W_CONTENT_CACHE
   FIELD = RECORD_ID                 : LONG    : 1 : PK
   FIELD = CONTENT_ID                : LONG    : 1
   FIELD = LOCAL_PATH_SIZE           : SHORT   : 1
   FIELD = LOCAL_PATH                : VARBIN  : 1

TABLE    = W_COUPONS_ISSUED
   FIELD = RECORD_ID                 : LONG    : 1 : PK
   FIELD = COUPON_ID                 : LONG    : 1
   FIELD = RECEIPT_ID                : BIN     : 6
   FIELD = TERMINAL_ID               : BIN     : 6
   FIELD = SUBSCRIBER_ID             : LONG    : 1
   FIELD = ISSUE_DATE_TIME           : LONG    : 1
   FIELD = FLAGS                     : BIN     : 1

TABLE    = W_DOWN_TIME
   FIELD = RECORD_ID                 : LONG    : 1 : PK
   FIELD = START_DATE_TIME           : LONG    : 1
   FIELD = END_DATE_TIME             : LONG    : 1
   FIELD = TECHNICIAN_ID             : LONG    : 1

TABLE    = W_FILE_CACHE
   FIELD = RECORD_ID                 : LONG    : 1 : PK
   FIELD = FILE_ID                   : LONG    : 1
   FIELD = LOCAL_PATH_SIZE           : SHORT   : 1
```

```
   FIELD = LOCAL_PATH                  : VARBIN   : 1

TABLE    = W_LEADERBOARD
   FIELD = RECORD_ID                   : LONG     : 1 : PK
   FIELD = LEADERBOARD_ID              : LONG     : 1
   FIELD = LEADERBOARD_DATE_TIME       : LONG     : 1
   FIELD = FLAGS                       : BIN      : 1
   FIELD = MAX_LEADERS                 : SHORT    : 1

TABLE    = W_LEADERBOARD_LEADER
   FIELD = RECORD_ID                   : LONG     : 1 : PK
   FIELD = LEADERBOARD_ID              : LONG     : 1
   FIELD = SUBSCRIBER_ID               : LONG     : 1
   FIELD = ALIAS                       : BIN      : 26
   FIELD = LOCATION_NAME               : BIN      : 26
   FIELD = LOCATION_CITY_STATE         : BIN      : 26
   FIELD = PRIZE_NAME                  : BIN      : 26
   FIELD = SCORE                       : LONG     : 1
   FIELD = SCORE_DATE_TIME             : LONG     : 1

TABLE    = W_LEADERBOARD_RANKING
   FIELD = RECORD_ID                   : LONG     : 1 : PK
   FIELD = LEADERBOARD_ID              : LONG     : 1
   FIELD = RANK                        : SHORT    : 1
   FIELD = SUBSCRIBER_ID               : LONG     : 1

TABLE    = W_LOCAL_LEADERBOARD
   FIELD = RECORD_ID                   : LONG     : 1 : PK
   FIELD = LEADERBOARD_ID              : LONG     : 1
   FIELD = LEADERBOARD_DATE_TIME       : LONG     : 1
   FIELD = MAX_LEADERS                 : SHORT    : 1

TABLE    = W_LOCAL_LEADER
   FIELD = RECORD_ID                   : LONG     : 1 : PK
   FIELD = LEADERBOARD_ID              : LONG     : 1
   FIELD = RANK                        : SHORT    : 1
   FIELD = SUBSCRIBER_ID               : LONG     : 1
   FIELD = ALIAS                       : BIN      : 26
   FIELD = SCORE                       : LONG     : 1
   FIELD = SCORE_DATE_TIME             : LONG     : 1

TABLE    = W_LOYALTY_POINT_AWARDS
   FIELD = RECORD_ID                   : LONG     : 1 : PK
   FIELD = SUBSCRIBER_ID               : LONG     : 1
   FIELD = LOYALTY_PROGRAM_ID          : LONG     : 1
   FIELD = POINTS_AWARDED              : SHORT    : 1
   FIELD = AWARD_DATE_TIME             : LONG     : 1

TABLE    = W_QUEUE
   FIELD = RECORD_ID                   : LONG     : 1 : PK
   FIELD = TERMINAL_ID                 : BIN      : 6
   FIELD = AGE                         : SHORT    : 1
```

```
    FIELD = QUEUE_TIME                  : LONG    : 1
    FIELD = EVENT_TYPE                  : BIN     : 1
    FIELD = EVENT_DATA_SIZE             : SHORT   : 1
    FIELD = EVENT_DATA                  : VARBIN  : 1

TABLE   = W_REDEMPTION_HISTORY
    FIELD = RECORD_ID                   : LONG    : 1 : PK
    FIELD = REDEMPTION_ID               : LONG    : 1
    FIELD = TIMESTAMP                   : LONG    : 1
    FIELD = SCORE                       : LONG    : 1
    FIELD = PAR_LEVEL_PAID              : BIN     : 1
    FIELD = SUBSCRIBER_ID               : LONG    : 1
    FIELD = CASH_AMOUNT_PAID            : LONG    : 1

TABLE   = W_REDEMPTION_LOCAL_POOL
    FIELD = RECORD_ID                   : LONG    : 1 : PK
    FIELD = REDEMPTION_ID               : LONG    : 1
    FIELD = LOCAL_POOL_VALUE            : LONG    : 1

TABLE   = W_REDEMPTION_PAR_LEVEL
    FIELD = RECORD_ID                   : LONG    : 1 : PK
    FIELD = REDEMPTION_ID               : LONG    : 1
    FIELD = PAR_LEVEL                   : BIN     : 1
    FIELD = ADJUSTED_PAR_ SCORE         : LONG    : 1

TABLE   = W_SERVICE_ACCESSES
    FIELD = RECORD_ID                   : LONG    : 1 : PK
    FIELD = SERVICE_ID                  : LONG    : 1
    FIELD = PROFILE                     : BIN     : 1
    FIELD = START_DATE_TIME             : LONG    : 1
    FIELD = END_DATE_TIME               : LONG    : 1
    FIELD = SUBSCRIBER_ID               : LONG    : 1
    FIELD = CASH_FUNDS_USED             : LONG    : 1
    FIELD = ACCOUNT_FUNDS_USED          : LONG    : 1

TABLE   = W_SERVICE_LEADERBOARD
    FIELD = RECORD_ID                   : LONG    : 1 : PK
    FIELD = SERVICE_ID                  : LONG    : 1
    FIELD = PROFILE                     : BIN     : 1
    FIELD = LEADERBOARD_ID              : LONG    : 1

TABLE   = W_TOURNAMENT_LOCAL_POOL
    FIELD = RECORD_ID                   : LONG    : 1 : PK
    FIELD = TOURNAMENT_ID               : LONG    : 1
    FIELD = LOCAL_POOL_VALUE            : LONG    : 1
```

Claims

I claim:

1. A system for controlling a customer reward system comprising:

(a) a first database for storing customer identifications, and for accumulated loyalty points awarded to the customer,

(b) an administration terminal for establishing loyalty point values associated with any of plural predetermined activities, and for storing the values and identities of associated activities, in a second database,

(c) a reading terminal for reading the identity of a customer at a location of the terminal,

(d) first apparatus located in the region of the reading terminal for detecting an activity of the customer, and

(e) second apparatus for accessing the second database, looking up the activity of the customer, and depositing corresponding loyalty points in the first database in association with an identification of the customer.

2. A system as defined in claim 1, including a game terminal for detecting an activity of the customer which is the achievement of a particular score range on the game terminal and reporting the score to said second apparatus.

3. A system as defined in claim 1, in which said first apparatus offers at least one of goods and services to a customer, and for reporting accessing of the at least one of goods and services by the customer to said second apparatus.

4. A system as defined in claim 3 including apparatus for loading the second database to a decision support server memory, and further including a regional server for storing the first database and for accessing the second database in the decision support server from time to time to obtain said established loyalty point values associated with said predetermined activities.

5. A system as defined in claim 4, the decision support server optimizing database data for transmission to plural regional servers and for propagating the database data to the plural regional servers from time to time.

6. A system as defined in claim 5 in which the first apparatus is a game terminal, the game terminal detecting an activity of the customer which is the achievement of a particular score range on the game terminal and reporting the score to an associated regional terminal.

7. A system as defined in claim 6, wherein the second database includes handicap specifying parameters, and in which the decision support server accesses the handicap parameters associated with a particular player or demographic or with a game, and optionally accesses a loyalty point parameter to be awarded for the achievement of the score, and the decision support server providing the handicap parameter and optionally the loyalty points to an associated regional server for computing and storing at least one of a handicapped score and loyalty points in the first database in association with the identification of the customer.

8. A system as defined in claim 4 in which the decision support server operates in real time with the

regional server.

9. A system as defined in claim 4 for downloading data from the first database to the second database which at least differs from data stored at the second database, from time to time.

10. A system as defined in claim 4 for replicating predetermined data stored in the second database, to the first database from time to time.

11. A system as defined in claim 3 in which the accessing of the at least one of the goods and services by the customer causes decrementing of loyalty points stored in association with the customer identification, of a number of loyalty points predetermined at the administrator terminal and stored in the second database.

12. A system as defined in claim 3, including a printer associated with at least one of the reading terminal and second apparatus, for printing and dispensing a coupon having an imprinted value and optionally a product or service indicator thereon under control of parameters specified on the administrator terminal and stored at least in the second database, the value and optional product or service being stored in the first database in association with a customer identification.

13. A system as defined in claim 12, including a coupon redemption input device, the second apparatus for accessing the first database for checking the read coupons, providing an acceptance or refusal indication, and in the case of acceptance, either marking the coupon in the first database as used or deleting record of the

coupon.

14. A system as defined in claim 13, the second apparatus for providing an acceptance indication as a start signal to an automatic service or product dispensing machine.

15. A system as defined in claim 14 in which the automatic service dispensing machine is one of a game, a public PC, a vending machine, a pay-phone or a video-phone.

16. A system as defined in claim 1 in which the administrator terminal is comprised of plural terminals at least some of which are disposed at remote locations.

17. A method of controlling a customer reward system comprising:

(a) distributing identification elements to prospective customers each of which store unique customer identifications,

(b) detecting the presence of an identification element at a terminal,

(c) receiving and storing at least one of currency credits, loyalty points credits and coupon credits in a database record associated with a customer identification based on at least one of a currency deposit and an activity undertaken by a customer,

the loyalty points and coupon credits being predetermined by an administrator and are variable depending on the activity undertaken by the customer and at least one of: an identity of a merchant or machine providing a product or a service, a total number or incremental number or skill level or persons which previously availed themselves of a product or service, an

advertisement presented on a display located adjacent to an identified customer, a time interval or the real time when the product or service is provided, a skill bracket or handicapped skill achieved by the customer of an activity, a handicap attributed to a machine which provides a product or service, an interval since an activity was undertaken by the customer or by other customers or by customers of a particular demographic profile, a classification in which the customer belongs, and a demographic profile of the customer.

18. A method as defined in claim 17 including storing parameters defined by the administrator for determining at least one of loyalty points and coupon credits, and providing the parameters to a server for calculation of credits and coupons for distribution to customer records upon determination of a particular activity having been undertaken by the customer.

19. A method as defined in claim 18 including receiving at a terminal the identity of a customer and a request to redeem at least one of loyalty points and a coupon for at least one of a service, goods or currency, checking the database record associated with the identity of the customer, sending an authorization signal to the terminal, and using the authorization signal to control provision of the service, goods or currency to the identified customer.

20. A method of controlling a customer reward system comprising:

(a) distributing identification elements to prospective customers each of which store unique customer identifications,

(b) detecting the presence of an identification

element at a terminal,

(c) receiving and storing loyalty point credits in a database record associated with a customer identification based on at least one of a currency deposit and an activity undertaken by a customer,

(d) redeeming loyalty point credits by any of plural unrelated merchants at any of plural redemption terminals,

(e) reporting loyalty point credits and redemptions undertaken by each of the plural merchants to an administrator terminal via a communication network, and

(f) settling credits and redemptions of loyalty points from time to time as between the merchants and administrator,

whereby the loyalty points are used as a medium of exchange between the merchants and administrator via the network and the terminals.

21. A method as defined in claim 20, in which the loyalty points and coupon credits are predetermined by the administrator terminal and are variable depending on the activity undertaken by the customer and at least one of: an identity of a merchant or machine providing a product or a service, a total number or incremental number or skill level or persons which previously availed themselves of a product or service, a time interval or the real time when the product or service is provided, a skill bracket or handicapped skill achieved by the customer of an activity, a handicap attributed to a machine which provides a product or service, an interval since an activity was undertaken by the customer or by other customers or by customers of a particular demographic profile, and a demographic profile of the customer.

22. A method for controlling a customer reward system comprising:

(a) establishing merchant, customer and administrator loyalty point databases,

(b) depositing loyalty points in a designated customer's database or in plural customer databases,

(c) redeeming loyalty points of a customer by a merchant providing a goods or services, and decrementing the database of the customer by a predetermined number of loyalty points and incrementing the database of the merchant by the predetermined number of loyalty points,

(d) decrementing a further predetermined number of loyalty points from the database of the merchant and incrementing the database of the administrator by the further predetermined number of loyalty points.

23. A method as defined in claim 22, and from time to time, settling values of loyalty points to monetary, merchandise or services values as between merchants and the administrator.

24. A method as defined in claim 22, including incrementing the database of specific customers with additional loyalty points based on predetermined activities undertaken by the specific customers.

25. A method as defined in claim 22, including decrementing loyalty points from the database of a merchant, and incrementing the number of loyalty points held in the database of the customer, upon a customer purchasing goods or services from the merchant, and incrementing the number of loyalty points held in the database of the customer.

26. A method as defined in claim 22 including running an advertisement on behalf of an advertising merchant, decrementing loyalty points from the database of the advertising merchant upon running the advertisement and incrementing the database of the administrator by the number of loyalty points decremented from the latter merchant due to running the advertisement.

27. A method as defined in claim 26, including identifying a customer adjacent a display or loudspeaker which can run the advertisement, and incrementing the database of the identified customer with a predetermined number of loyalty points upon reproducing the advertisement by the display or loudspeaker.

28. A method for controlling a customer reward system comprising:

(a) establishing merchant, customer and administrator loyalty point databases,

(b) depositing loyalty points in a designated customer's database or in plural customer databases,

(c) redeeming loyalty points of a customer by a merchant providing a goods or services, and decrementing the database of the customer by a first predetermined number of loyalty points and incrementing the database of the administrator by the first predetermined number of loyalty points, and

(d) decrementing a further predetermined number of loyalty points from the database of the administrator which is smaller than the first predetermined number of loyalty points and incrementing the database of the merchant by the further predetermined number of loyalty points.

29. A method as defined in claim 28, and from time to time, settling values of loyalty points to monetary, merchandise or services values as between merchant and the administrator.

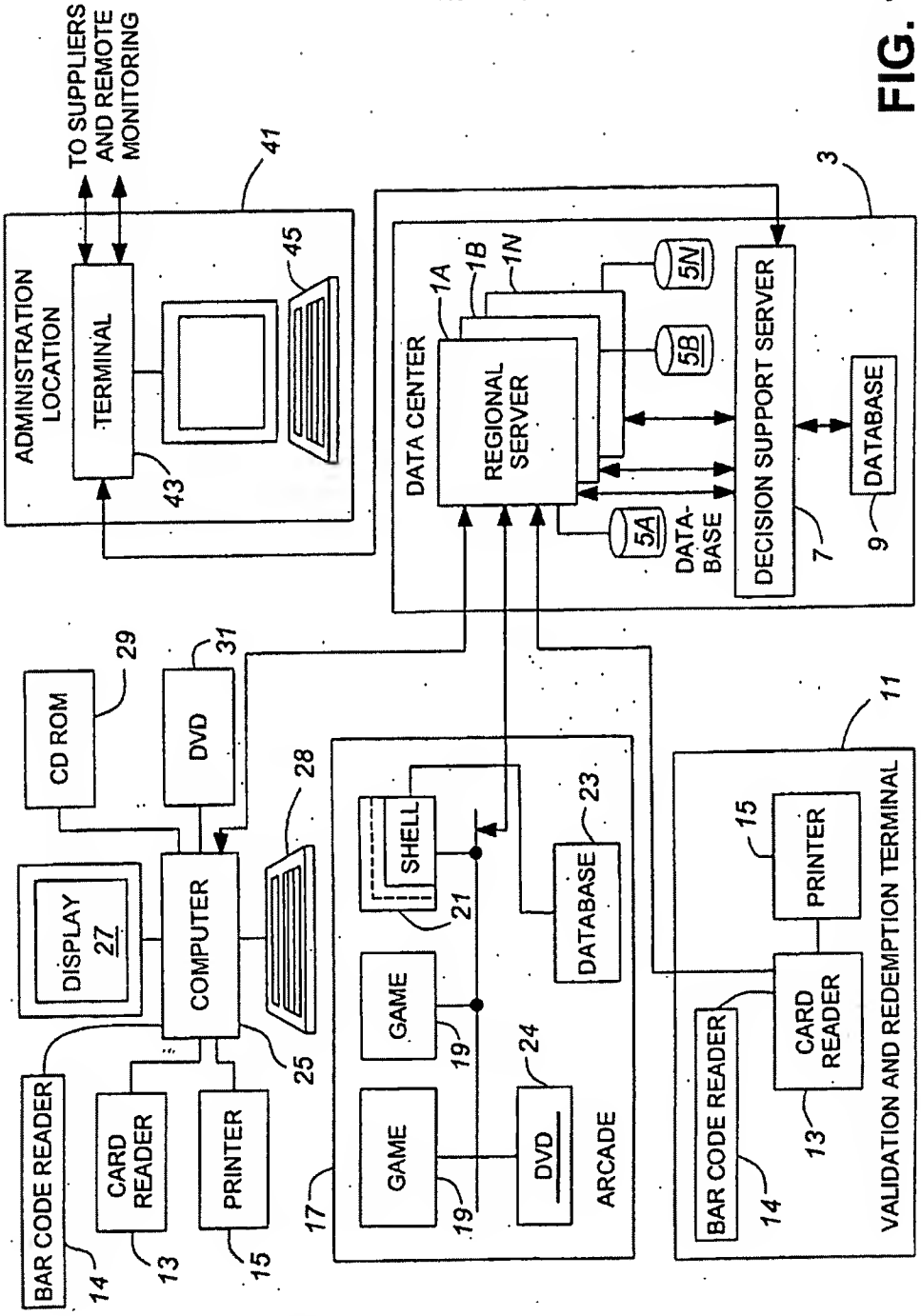
TO SUPPLIERS AND REMOTE MONITORING
ADMINISTRATION LOCATION
TERMINAL
41
43
45
3
DATA CENTER
1A
1B
1N
REGIONAL SERVER
5A
5B
5N
DATA-BASE
DECISION SUPPORT SERVER
7
DATABASE
9
CD ROM
29
DVD
31
28
DISPLAY 27
COMPUTER
25
SHELL
21
GAME
19
GAME
19
DVD
24
DATABASE
23
ARCADE
17
PRINTER
15
CARD READER
13
BAR CODE READER
14
VALIDATION AND REDEMPTION TERMINAL
11
BAR CODE READER
14
CARD READER
13
PRINTER
15

FIG. 1

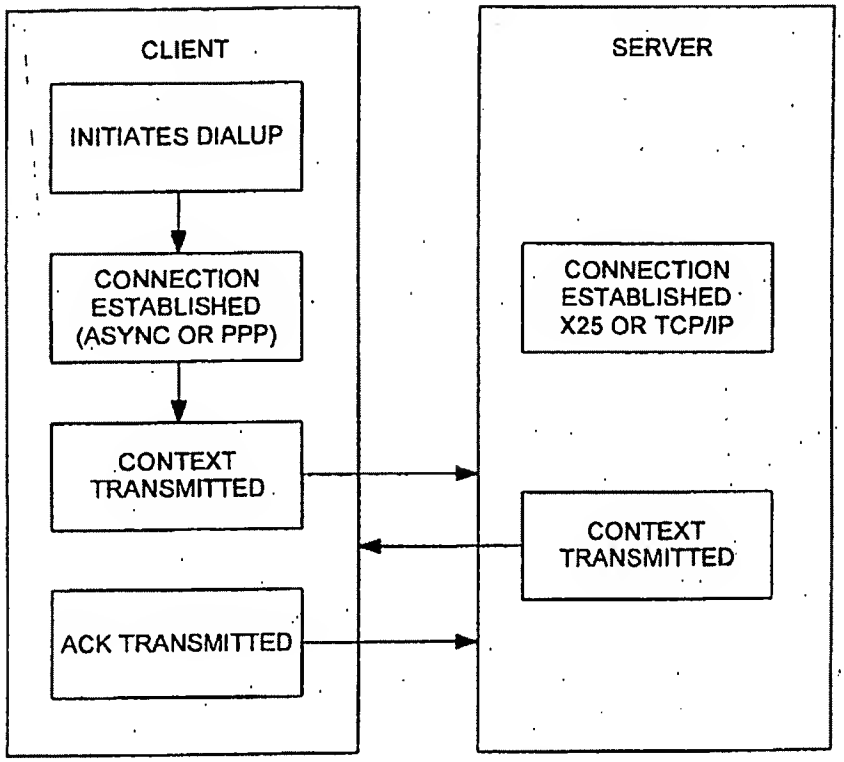
CLIENT
INITIATES DIALUP
CONNECTION ESTABLISHED (ASYNC OR PPP)
CONTEXT TRANSMITTED
ACK TRANSMITTED
SERVER
CONNECTION ESTABLISHED X25 OR TCP/IP
CONTEXT TRANSMITTED

FIG. 2

INTERNATIONAL SEARCH REPORT

Int. nal Application No
PCT/CA 99/01198

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 25242 A (CARLSON COMPANIES, INC.) 11 June 1998 (1998-06-11) the whole document	1-29
X	GB 2 274 349 A (HTEC LIMITED) 20 July 1994 (1994-07-20) the whole document	1-29
X	US 5 297 205 A (AUDEBERT ET AL) 22 March 1994 (1994-03-22) the whole document	1-29

☐ Further documents are listed in the continuation of box C. ☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
4 April 2000	12/04/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Abram, R

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Int ...nal Application No
PCT/CA 99/01198

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